Member Associated Business Papers, Inc.

The Newspaper of the Industry

Member Audit Bureau of Circulations.

AIR CONDITIONING AND REFRIGERATION News

Issued Every Monday at 450 W. Fort St., Detroit 26, Mich.

JAN. 7, 1946

Vol. 47, No. 1, Serial No. 877. Established 1926.

Reentered as second-class matter October 3, 1936 at the post office at Detroit, Michigan, under the Act of March 3, 1879.

Inside Dope

By George F. Taubeneck

What a Troubled World!

Some people, when looking over the prospects for the future at the beginning of this New Year, are sorely troubled in their minds.

There's the atomic bomb. There's the bickering between nations. There's the world-wide sweep toward communism. There's the social unrest everywhere. In this country, strikes and the attitude of labor worry most of us.

In our own industry, manufacturers can't get parts and materials. They can't get people to work. And so hungry dealers and distributors still aren't geting anything much to sell.

The most frustrated men in the country today, someone has observed, are merchandising men.

But All Is Not Lost!

Instead of crying over the apparently hopeless picture, however, one can still have hope in the greatness of America, and in the inherent common sense of its people.

Everybody is suffering from an emotional and physical exhaustion which is war's aftermath.

Things may right themselves sooner than we think.

How Things Stand

Here's a quick appraisal of the national scene—as it affects industry and business—gleaned from many sources in Washington:

Labor

In many localities the problem no longer is manpower. It is unwillingness to work.

That situation doubtless is temporary, but it is very important now and is holding up reconversion at a time when an increased flow of goods is vital.

Control of inflation is almost as important as was the defeat of the Japanese. To induce men to work, particularly on the less desirable jobs, is almost exclusively a problem of the industrial and business executive. It will be complicated further if unemployment insurance is increased without proper safeguards.

In inducing men to work or to increase output, incentives play a major part. In the United States before the war the rate of wage constituted the chief incentive. During the war limits had to be placed on wages. This made necessary the use of other incentives. A War Production Board study covers 512 of these.

In the postwar period, if inflation is to be avoided, the wage inducement can be used only sparingly. It takes no managerial brains to outbid another employer. It takes real ingenuity, though, to use some other incentives.

Materials

Maldistribution of materials is not confined to the construction industry. It spreads horizontally across all industries. It is one of the principal deterrents to reconversion.

If industry could be induced to release any materials beyond that immediately needed the effect would

(Concluded on Page 5, Column 1)

Schnacke Buys Rights To Servel 'Big Unit' Line

EVANSVILLE, Ind. — A newly created Evansville firm, Schnacke, Inc., has purchased from Servel, Inc., the designs, models, patterns, and right to manufacture and sell 10 to 50-ton electric refrigeration and air conditioning compressor units, which models were formerly manufactured by Servel.

This was announced jointly by Fred C. Schnacke, president of the new firm and George S. Jones, Jr., vice president in charge of sales for Servel, who added that Servel will concentrate its production on ⅛ to 5-hp. condensing units in the refrigeration field.

"Servel is selling the large capacity units," Mr. Jones said, "to make way for a big expansion program in the making of smaller electric refrigeration condensing units." He said Servel will increase production tremendously during 1946 in their electric refrigeration division which manufactures the ⅛ to 5-hp. refrigeration units.

W. J. Aulsebrook, sales manager for the electric refrigeration division of Servel, said that war priorities caused Servel to discontinue operation in the field of manufacture sold to Schnacke in 1944.

"Our present outlook is such that we believe we will have all we can handle in the small unit field during the next few years," he said. "In

(Concluded on Back Page, Col. 2)

Proposed Wisconsin Codes Still a Secret

MADISON, Wis.—The exact provisions of the proposed new refrigeration safety code for the state of Wisconsin still remain considerable of a mystery, but it is understood that some of the objectionable features were altered during a closed hearing last month conducted by the state Industrial Commission.

Many segments of the industry have become alarmed about the proposed code, since some of its provisions "leaked out" to the industry. One member of the industry who happened to become acquainted with some of the proposed provisions declares that they "would increase the cost and problems of installation on all small refrigeration systems, and would serve to regiment buyers of refrigeratoin equipment."

One change said to have been made at last month's hearings was to the effect that whereas it had previously been recommended that all refrigeration and air conditioning installations of any size would have to be registered, and all jobs larger than ½ hp. would have to get a permit to be installed, it is now contemplated that neither a permit nor registry will be required for remote-type installations up to and including those of 1½-hp. capacity (one horsepower is considered as being one ton of refrig-

(Concluded on Page 21, Column 2)

Wampler Sees '46 Sales Double Past Records

SYRACUSE, N. Y.—The air conditioning and refrigeration industry will have a 1946 market "more than double that of the best prewar years," it was stated by Cloud Wampler, president of Carrier Corp., in a year-end statement.

Increased demand for products of the industry will result primarily from two factors: the large pent-up demand created because of war shortages, and increased uses of air conditioning in a variety of industries.

'Auditorium' Air Conditioning Patents Now Belong To Public

WASHINGTON, D. C. — A final decree dedicating to the public the "Auditorium" air conditioning patents was entered Dec. 30, according to an announcement made by U. S. Attorney General Tom C. Clark. The decree was entered with the consent of all of the defendants.

The decree was entered following a civil anti-trust action which had originated on Aug. 18, 1943, in the U. S. District Court for the Southern District of New York.

The Department of Justice charged that the Auditorium Air Conditioning Corp. and certain manufacturers of air conditioning equipment had conspired to monopolize the manufacture, distribution, and installation of air conditioning equipment. The defendants which are bound by the injunctions of the decrees are: Carrier Corp., Syracuse, N. Y.; B. F. Sturtevant Co., Boston; York Corp., York, Pa.; Ross Industries Corp., New Brunswick, N. J.; American Blower Corp., Detroit; and Auditorium Conditioning Corp., New York.

Auditorium Conditioning Corp. owned or controlled a large number of patents pertaining to air conditioning and cooling systems, these patents being popularly known as the "by-pass" patents relating to a system or method of treating air to obtain the desired conditions.

In addition to putting these patents in the public domain, the decree calls for the dissolution of Auditorium Conditioning Corp. and cancels all agreements between the defendants relating to obtaining and granting of patent rights by Auditorium. It also prohibits defendants

(Concluded on Back Page, Col. 1)

Supply Problem Cut Kelvinator Appliance Production In 1945

DETROIT — Disruption of refrigerator production by supply difficulties has forced Kelvinator Division of Nash-Kelvinator Corp. to scale down its 1946 goal by perhaps 200,000 units, George W. Mason, president, said in a year-end statement disclosing that postwar output of Kelvinator and Leonard appliances in 1945 fell 50% to 96% short of projected schedules.

In his statement, Mr. Mason forecast a total industry volume of around 3,500,000 refrigerators this year. Originally, the industry had planned to build about 4,250,000 units, he said.

Current estimates of Kelvinator now call for between 400,000 and 500,000 refrigerators in 1946, as compared with a previous goal of between 600,000 and 700,000, according to Mr. Mason. He said that by mid-year, the division had hoped to be approaching production of 1,100,000 home appliances annually.

The division had planned to produce about 90,000 refrigerators in 1945, according to estimates set up immediately after the Japanese surrender. However, actual production has been less than 50% of the projected total, Mr. Mason's statement revealed, even though the corporation "built and shipped every unit it could assemble during the final

(Concluded on Page 21, Column 1)

G-E Output Lags; Goals Are High

NEW YORK CITY—Production of General Electric Co. appliances is running at 40% of 1941 levels—about 60% of what the company had previously estimated as its reconversion schedule—and 94% to 97% of current production on three major items is being shipped, officials of the company declared recently to refute union charges that G-E had been holding up shipments to distributors pending removal of the excess profits tax on Jan. 1.

Delay of production is due to a combination of several major factors, including shortages of parts and materials and price control, declared Charles E. Wilson, G-E president.

Higher costs of materials and a 30% average rise in labor costs since

(Concluded on Page 20, Column 3)

Federal Telephone To Make Appliances

NEW YORK CITY—Federal Telephone & Radio Corp., a subsidiary of International Telephone & Telegraph Corp., hopes to get into production on electric refrigerators, radios, and washing machines within the year, officials of the company announced last week.

It is not likely that the refrigerator line will be in production until late in 1946, the officials indicated. The company plans eventually to produce a complete line of major appliances.

Retail Prices Set For Philco and Westinghouse Refrigerators

WASHINGTON, D. C.—Prices for several Philco household electric refrigerator models and one Westinghouse refrigerator model have been established by OPA in Amendment 2 to MPR-598.

The prices include the five-year warranty, Federal excise tax, and installation to facilities provided by the buyer, but do not include state or local taxes imposed at the point of sale.

Philco

Model No.	1st Zone	2nd Zone	3rd Zone	4th Zone	5th Zone
A-622	$156.50	$158.50	$159.95	$164.50	$167.50
A-721	177.50	179.50	182.50	185.50	188.50
A-731	197.50	199.50	202.50	205.50	208.50
A-741	217.50	219.50	222.50	225.50	228.50
A-750	232.50	234.50	237.50	242.50	245.50
A-751	246.50	248.50	251.50	254.50	257.50
A-752	263.50	265.50	268.50	271.50	273.50
A-951	296.50	299.50	302.50	305.50	309.50
A-950	266.50	269.50	272.50	275.50	279.50
A-931	216.50	219.50	222.50	225.50	229.50
A-736S	147.95				

Westinghouse

B-7-46	$179.95*

*Zone 1 in this case includes 48 states and Washington, D. C.

Union Leaders Plan Strike as Parleys Fail

G-E, GM, Westinghouse Production Threatened By Union's Move

WASHINGTON, D. C.—With union officials meeting Jan. 5 to decide when to call a strike against General Electric Co., Westinghouse, and electrical divisions of General Motors, further restrictions on the nation's output of electrical appliances appears likely.

This move follows an apparent breakdown of efforts for conciliation which were started two weeks ago by Edgar L. Warren, director of the United States Conciliation Service.

"I'm afraid it's a serious situation," Mr. Warren declared, seeing in it a threat to the output of such scarce items as refrigerators, washing machines, and toasters.

The union, which numbers 200,000 members is the CIO United Electrical, Radio & Machine Union. Wage increases of $2 a day for its members had been asked, and on Dec. 13, 87% of the union workers had voted approval of the plan to strike if necessary.

G-E and Westinghouse had offered the union a 10% wage increase, which was promptly refused, but the union had continued negotiations with General Motors, said James J. Matles, the union's organization director, merely because General Motors had offered a 13½ cent an hour raise.

While considering the General Motors offer unsatisfactory, Mr. Matles explained that the union had continued negotiations because: "Our policy is we will talk more with people who offer more and talk less with the people who offer us less."

Negotiations with both General Electric and Westinghouse "broke down," according to Mr. Matles, because those companies' notice of cancellation of contracts with the union indicated to him that negotiations were not being carried on in good faith.

The union chief said he was not interested in having the government appoint a fact-finding committee, since he himself had enough economic data to "prove" the companies could pay $2 a day more to their employes without raising prices.

Mr. Matles further stated that he

(Concluded on Page 21, Column 2)

Small Appliance Mfrs. Given Price Increase

WASHINGTON, D. C.—Manufacturers of small electrical appliances have been granted an 8% increase in their prices in Order 6 to MPR 188 issued by the OPA.

There will be no increases in retail ceiling prices, however, which means that dealers will absorb the price increase granted to the manufacturer, unless the manufacturer makes some special provision.

The order provides that a distributor's ceiling price is the retail ceiling price (exclusive of Federal excise tax) for a sale by a dealer, other than a chain store or mail order house which purchases directly from the manufacturer, less 33% in the case of sales in the smallest quantities and less 36% in the case of sales in the largest quantities for which the distributor had a price in effect during March, 1942, or for which prices have been established under applicable OPA regulations.

In addition to his ceiling price, a distributor may collect the amount of the Federal excise tax payable by the manufacturer on a sale to him.

GM's Dayton Chief

L. C. GOAD
Has been appointed vice president in charge of General Motors divisions at Dayton and other points.

Nighswander Returns as Hurley District Head

ST. LOUIS—Dan R. Nighswander, formerly district sales manager of the Hurley Machine Division of the Electric Household Utilities Corp., has returned to that position here after 36 months of service in the Army Air Forces.

Mr. Nighswander will reopen his office at once, to serve his district which includes eastern Missouri, southern Illinois, and the St. Louis, St. Louis County area.

G-E Prepares Big Exhibits for 3 Retailers Shows; Home Bureau Staff to Guide N.R.D.G.A. Exhibit

BRIDGEPORT, Conn. — Complete General Electric kitchens and laundries in miniature will be laid out, set up, and photographed at the National Retail Dry Goods Association show in New York City this month.

This activity will be the outstanding special feature of the G-E exhibit at the Pennsylvania hotel meeting, A. L. Scaife, advertising and merchandising manager of the company's Appliance & Merchandise Department, has announced.

Outlining the company's plans for participation in the NRDGA show and the Housewares Show and Furniture Mart in Chicago, Mr. Scaife said that the newest appliances in General Electric's major and traffic lines will be on display in both cities.

The complete traffic appliance line, including the new two-control blanket and four unusual new electric clocks, will make its formal bow to the nation's retailers at the Housewares Show in the Palmer House.

The G-E display at this show will be spread over four rooms, each one featuring a special line—clocks, heating devices, vacuum cleaners, and "health" items.

Coffee will be served continually in connection with the working demonstration of the G-E automatic coffee maker.

Starting Jan. 7, G-E refrigerators, ranges, and home laundry equipment will be displayed at the Furniture Mart. In addition, there will be a demonstration of the G-E Home Bureau's kitchen and laundry planning activities.

In New York City, the entire line of traffics and majors, including the new automatic General Electric dishwasher, disposal unit, and storage cabinets, will be displayed.

Mr. Scaife said that virtually the entire Home Bureau staff would be on hand at the NRDGA show to demonstrate the manner in which the bureau goes about helping homebuilders, contractors, and architects to set up convenient modern General Electric kitchens and laundries.

Robert Hood Elected Secretary of Ansul

MARINETTE, Wis. — Robert C. Hood, who received his discharge in November from the U. S. Coast Guard in which he had the rating of lieutenant and who saw service in the Pacific on a combat cargo ship, was elected secretary of Ansul Chemical Co. at the firm's annual meeting of the board of directors.

Mr. Hood, younger brother of F. J. Hood, Ansul's vice president and president of the Refrigeration Equipment Manufacturers Association, was associated with the firm before he entered the service in 1943. He rejoined the company following his discharge.

Other officers re-elected were H. V. Higley, president; F. J. Hood, vice president; J. F. Asell, treasurer; and Mrs. [illegible] G. Hood, mother of Robert C. and F. J. Hood, chairman of the board.

MacDonald Elected V.P. Of Crosley N.Y. Branch

NORMAN C. MacDONALD

* * *

CINCINNATI — Norman C. Macdonald, formerly eastern regional sales manager for Crosley Corp., has been promoted to vice president and general manager of the New York branch of the firm, and is succeeded in his previous position by Sherman A. Bishop, reports R. C Cosgrove, vice president and general manager of the Crosley manufacturing division.

During his 20 years in the electrical appliance business, Mr. Macdonald served as district manager of the Kelvinator Corp. and regional manager for Atwater Kent.

Mr. Bishop has been with Crosley as merchandise manager in the eastern sales district for the past 15 months. He was previously a divisional manager for Congoleum-Nairn, Inc., and has 22 years of sales promotion experience in the merchandising field.

Union Electric Names Coe Promotion Manager

ST. LOUIS—Union Electric Co. of Missouri has announced the appointment of Robert L. Coe as residential appliance promotion manager under W. L. Berry, general sales manager. He will head up the company's enlarged home appliance sales program, Better Light and domestic electrical equipment merchandising campaigns in cooperation with St. Louis appliance dealers.

Mr. Coe recently returned to the utility from overseas service in the Navy, in which he held several staff posts. He has been on Union Electric's staff for 16 years, entering the company in early 1929. In 1937 he was appointed merchandise manager and promotional director, which position he held until leaving for the Navy in 1943.

The new post will include all former promotional services, as well as several recently developed programs. Chief responsibility is supervision and planning of retail sales campaigns.

Westinghouse Will Add 6,000 Buffalo Workers

BUFFALO — Approximately 6,000 workers in the Buffalo area will be added to the payroll of the Westinghouse Electric Corp. during the coming year, Leon R. Ludwig, manager of the Motor Division, announced recently.

Discussing the acquisition of the former Curtiss-Wright plant at Buffalo, Mr. Ludwig revealed that plans for the removal of motor operation included the transfer of certain other activities from the East Pittsburgh Works to the new site.

"The manufacture and insulation of copper wire will be shifted to the Buffalo plant," he explained. "The proximity of these processes to the motor construction unquestionably will stimulate development of new types and methods of motor insulation. Arc and resistance welding facilities will be moved, also, as will the manufacture of electrodes and copper and selenium rectifiers."

Mr. Ludwig disclosed that plans for the entire transfer had already been completed.

"Several hundred key members of our division will be moved," he said, "starting next month with some office personnel. Engineers and shop supervisors will follow, and actual production should get under way in mid-March. We expect to reach full scale operations by the end of 1946."

Potter Interests Seek Dismissal of G-E Suit

BUFFALO — Federal Judge John Knight reserved decision on a motion by the Refrigeration Patents Corp. of Buffalo requesting dismissal of a suit filed by the General Electric Co. of Schenectady for a declaratory judgment holding a two-temperature refrigerator it contemplates manufacturing would not infringe the so-called Bronaugh & Potter patent.

Attorney Charles H. Walker, representing General Electric, argued that the refrigeration system contemplated is "wholly different" from that covered by the patents held by the Buffalo concern.

Attorney Lawrence Bristol seeking dismissal of G-E's suit, asserted that no issue has been created because the two-temperature refrigerator has not been produced. He asked that the court dismiss the G-E suit for lack of jurisdiction.

Foraker Heads Basham Wholesale Division

WICHITA, Kan.—Harold F. Foraker has been named new manager of the wholesale appliance division of the Basham Appliance Co., which will locate at 216 No. Main when office equipment is available.

The Basham division will distribute major appliances and small appliances to 66 Kansas dealers, including exclusive lines of ranges and hot water heaters.

100 YEARS

of Service

MICHAEL BOLDA ROBERT BOLDA

Michael and Robert Bolda Celebrate 50th Anniversary as Employees of Detroit Lubricator Company

ON October 13, 1945, Michael and Robert Bolda celebrated their 50th anniversary in the service of Detroit Lubricator Company, rounding out 100 years of service between them, having started with Detroit Lubricator Company in the Fall of 1895.

Mike is superintendent of the foundry, and Bob is foreman of the core room. Their work has been with the foundry for the entire time, and they have seen non-ferrous foundry methods develop from the rule of thumb control and hand labor of 1895, to the modern mechanized operation and exact scientific control of modern instruments as used today.

Mike's first job was mixing core sand. He had to "riddle" (sift) it by hand, and mix in the oil and other ingredients by hand shoveling. Then he had to carry it by hand, in boxes, to the core making benches. In 1902 he was given charge of the core room, and in 1910 was made assistant foundry superintendent. In 1916 he became foundry superintendent and began his work of exact control which has made Detroit Lubricator castings noted for high quality. He did it by making exact records of the best conditions for casting each type of piece – by constant experiment to improve castings.

In the early days such instruments as pyrometers were unknown. Metal temperature had to be judged by color and by "vibration" when a rod was immersed in the ladle of molten metal. Very hot metal will vibrate the rod, cool metal will not. A skilled man can check his eye judgment in this way. "Modern pyrometers are much better, however," Mike says, "because eye judgment at its best can only come within 10 degrees or so of the correct temperature, and then only under the most favorable conditions."

Careful control of metal temperatures, molding and casting conditions, as well as metal mix, has always been of first importance to Detroit Lubricator Company. Beginning with their early products, pressure and other type lubricators, and continuing through automobile carburetors to the present line of refrigeration and heating valves, their products have always required castings of perfect soundness, impervious under pressure test. When Mike took charge of the foundry, scrap losses were high and too many castings had to be remelted because they were not suitable for use. His control methods have since cut losses to a fraction of what they were.

While Mike was pursuing losses in the foundry proper, Bob was doing similar service in making cores. Cores are baked sand shapes placed in the mold to make hollow places in castings. They are made of various kinds of sand plus some binder such as linseed oil or stale beer (in early days); or these days, scientifically mixed core oil. Making them looks as simple as whipping up mud pies, but foundrymen will tell you they are tricky. They can skyrocket scrap losses if they fail to behave properly when the hot metal flows around them in the mold.

Mike and Bob have found Detroit Lubricator Company a good place to work. So have their sons. Mike has three sons and one daughter living. One son works at Detroit Lubricator Company and the other two are in the armed services. Two of Bob's sons work at Detroit Lubricator Company and two are in the army. Bob also has a daughter.

The Boldas are, in many ways, typical of Detroit Lubricator Company people. They stay with the company, contributing their skill and experience toward making the products better as the years go by.

DETROIT LUBRICATOR COMPANY

"DETROIT"

General Offices: 5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

Canadian Representatives — RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators

21 Principles Will Guide Activities Of National Contractors Association

Oil Heating Devices, Inc.
1835 E. 24th St.
Cleveland, Ohio

Editor:

The organization committee of the National Association of Refrigeration Contractors believes that some wrong impressions of this new organization might have been gained from the article that appeared in your issue of Dec. 17.

We are very anxious to set the records straight with contractors all over the country, and with manufacturers with whom we are having exceedingly pleasant relationships, and with jobbers who have been so very helpful in obtaining merchandise we needed, and with their respective associations.

The National Refrigeration Contractors' Association was formed in Chicago because all of the men in the contractors' group recognize that we have a set of problems peculiar to our businesses and consequently, we need and want a place where these problems can be solved.

There was never, and never will be, an intent to overlap any existing group or association or to dictate any policy. On the contrary, every member of this organizational group recognizes the necessity for complete cooperation with the other existing groups in the refrigeration and air conditioning industry, in order that this new association can accomplish its aims and purposes.

To attest these statements, we herewith relate the 21 principles on which this new association has been formed:

1. To arrange for and provide meetings of refrigeration contractors in the various sections of the country.

2. To promote the welfare of its members.

3. To compile and distribute data pertaining to the business of refrigeration contracting.

4. To issue engineering and data sheets required in refrigeration contracting problems.

5. To compile and distribute industry statistics.

6. To aid in bringing about more friendly relations between refrigeration contractors and others engaged in the refrigeration industry.

7. To assist in marketing high grade refrigeration material and apparatus.

8. To encourage its members in establishing and conducting attractive places of business.

9. To encourage and foster harmonious relations between employes and employers.

10. To elevate the standard of refrigeration installations, and to cooperate with the inspection authorities for the maintaining of proper standards and the development of licensing codes and ordinances.

11. To represent the interests of its members in matters of national legislation and regulation.

12. To cooperate in the further development of a National Refrigeration Code and its approval by the American Standards Association in establishing proper standards for refrigeration material as well as its installation.

13. To cooperate with architects and engineers in the preparation of adequate specifications for refrigeration installations.

14. To cooperate with the manufacturers and wholesalers of refrigeration supplies in problems of manufacturing standards and methods of distribution.

15. To cooperate with the public utilities companies in problems and for the improvement of service to the public.

16. To cooperate with municipal, state, and Federal governments in matters of public interest.

17. To distribute information to the public that will aid in obtaining best practice in refrigeration installations, including safety to life and property, permanency, adequacy, efficiency, and economy of operation, with proper regard for cost.

18. To cooperate with other national associations in problems of trade relations, merchandising policies, and for the improvement of service to the public.

19. To aid and assist in the development of standardized forms.

20. To attempt to have Workman's Compensation Insurance rates be given a refrigeration classification.

21. To do any and all other things which come within the scope of the Association's constitution and by-laws which will aid any member in the solution of his particular problem.

These principles reflect the true thinking and the aims of the National Association of Refrigeration Contractors.

National Refrigeration
Contractors Association,

W. RAY KROMER,
Chairman, pro tem

Burkell Named Engineer For Engineering Service

CLEVELAND — Appointment of Alfred K. Burkell as chief development and application engineer is announced by Drew N. Martin, president of Engineering Service, Inc., here, sales agency for the Hubbell-Yoder system of full-flooded plate refrigeration.

After seven years of field service in refrigeration engineering, Mr. Burkell entered the Refrigeration and Air Conditioning Institute in Chicago. Upon graduation he was appointed assistant superintendent and chief instructor of an Army and Navy training program. Prior to joining the staff of Engineering Service, Inc., he was in charge of the Industrial Refrigeration Division of Gray Mill Co., Evanston, Ill.

Fairchild Resigns as Trade Standards Chief

WASHINGTON, D. C.—I. J. Fairchild, formerly chief of the division of trade standards, National Bureau of Standards, has been elected secretary of two plumbing fixture trade associations—the Vitreous China Plumbing Fixtures Association and the Enameled Cast Iron Plumbing Fixtures Association.

Floyd W. Reynolds has succeeded Mr. Fairchild at the National Bureau of Standards.

At recent meetings the Vitreous China association elected the following officers: R. E. Bidwell, chairman; O. A. Kroos, vice chairman; John F. Douglas, treasurer.

Radford R. Crane is chairman of the Enameled Cast Iron group; O. A. Kroos, vice chairman; and K. F. Prestin, treasurer.

Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

be electrical. A well-supplied plant or contractor may be held up by one single item. One plant may be holding up other plants because it is retaining a stock of one item in excess of immediate needs.

Primary producers have a moral obligation to spread their output as far as possible and to help keep supplies off the black market, officials feel. The same is true of wholesalers, jobbers, and retailers.

Voluntary rationing has been very successful in some lines. It has been more effective with consumer goods than with producers' goods and contractors' materials.

More On Labor

With regard to labor, the feeling is that the problem is one with which the country has been wrestling for a long time. There is not much new about it. Those who expect someone to pull something out of a hat are sure to be disappointed.

Sight must not be lost of the fact that no one in political office wants to lose labor votes.

This causes some to forget that the paramount duty of the public official and of government is to look out for the interests of the unorganized and of those not represented by pressure groups.

The highly organized can look out for themselves.

There is a desire on the part of many of the key men in government to bring about a better proportioned wage structure.

As it is, the so-called aristrocracy of labor receives a disproportionate amount of the nation's total payroll. Such officials feel that the upper brackets of labor have been receiving an undue proportion of total wages paid.

They think the effort at present should be to take care of the lower and middle bracket wage earners so that buying power would be spread all the way to the bottom, and not concentrated so much in the hands of the highly organized.

Labor Leaders Uninterested

Minimum wage and full employment legislation are intended principally to benefit those groups. Persons interested in those bills say they get little real assistance from the big unions.

Some officials say management is more interested in increasing wages in the lower brackets than are most labor leaders. Interest of most labor leaders in the welfare of consumers is microscopic.

A highly held Washington view is that it is unfortunate for the general public, as well as for labor, that the caliber of present labor leaders is so small.

There is not a statesman among them, some officials are convinced. Most of the leaders of the large unions have not learned the fact that society is one. They have not learned that even labor is one.

Something Big to Reconvert

It would be fatuous to expect that a surging $2,000,000,000 economy could be reconverted without major difficulties; but when everything is considered, reconversion is going remarkably well.

With government spending declining rapidly and with the army and navy pouring thousands of men a day onto the labor market, it is remarkable that business and industry have not been more disturbed.

The country is producing large amounts of goods. Output is not bogging down. Preliminary figures and estimates from all parts of the country show this trend to be continuing in most lines.

Chances of escaping runaway inflation are better than ever. Washington economists think that, with the right kind of head-work used, we also can escape large-scale unemployment when wartime scarcities are overcome. At the prewar rate of production there now would be 20,000,000 unemployed.

Bad Law

If Congress ever deserved criticism it was for passing a completely unworkable surplus property law. Had the government been able to dispose promptly of the great surpluses built up during the war a real service could have been done the country.

Markets were starved for much of the property that was needlessly held off the market by the failure of Congress to realize that the prompt release of those supplies would have been the greatest public service they could have rendered.

Instead the ideas of a few demagogs and special pleaders were allowed to prevail.

'Insured' Finance Plan Meets Legal Snarls

NEW YORK CITY—With battle lines now forming for intense competition for consumer credit business, increased significance will attach to efforts by insurance agents to curb through legislation or administrative action the privilege of dealers in automobiles and household appliances to sell insurance to protect the unpaid balance on such financed products.

Analysis of recent developments discloses that this issue was raised in a number of states during 1945, with prospects that it will take on added importance in the future in view of the battle now brewing between finance companies on the one hand and commercial banks and insurance agents on the other.

Insurance agents were unsuccessful in at least three states during 1945 in their attempts to obtain the enactment of legislation curbing insurance sales by dealers in financed products, but won administrative action favorable to their cause in at least two other states.

Gov. Raymond E. Baldwin vetoed a bill passed by the 1945 Connecticut legislature which was intended to prevent dealers in financed products from requiring the purchasers of such products to take out insurance with the dealer's company or the dealer as agent.

Under the Connecticut measure, which had the backing of the Connecticut Association of Insurance Agents, any persons or corporation offering to sell property on an instalment payment plan which requires the borrower or purchaser to procure any insurance or indemnity contract through a designated insurance company, agent, or broker, would have been liable to a fine of not more than $100.

In rejecting the measure, Governor Baldwin said he could see no reason why a prospective borrower or purchaser cannot refuse to make a loan or to make a purchase if he finds that the contract provisions require him to take out insurance in some designated company. "It would seem," he commented, "that this statute is an unwarranted interference with the right to make a contract. Furthermore, it is hazy and indefinite as to what constitutes a criminal offense under the terms of the law. Furthermore, there is no provision as to who the enforcement agency would be."

Gov. Thomas E. Dewey vetoed a New York State bill which would have given owners or purchasers of personal property, such as automobiles and household appliances bought on credit, the right to negotiate any policy of insurance or renewal through any agent or broker of their own selection. Although noting that under existing New York law such right is conferred on owners of real estate on which money is borrowed with mortgage security, Governor Dewey said the bill relating to personal property was technically defective.

"It prohibits unincorporated lenders and sellers, as well as incorporated ones," he said, "from impeding the right of such owners or borrowers. The amendments, however, are not carried over to the other provision of the statute which gives incorporated lenders or sellers the right to approve or disapprove the insurers selected by borrowers on real property."

Rejected by the 1945 Vermont legislature, after its constitutionality had been attacked, was a proposed amendment to the state's insurance laws to prohibit agents, selling products on time sales plans, from also selling insurance to protect unpaid balance on the goods.

In Ohio litigation was started over a ruling by the state insurance superintendent which held that licenses shall not be issued to applicants connected with the automobile sales business. The Ohio administrative ruling under attack was first promulgated in 1943, but was amended in 1945 with insertion of the word "solicitors" after the word "agents" in the regulations, and the age limit for applicants for licenses was lowered to 18 years for those honorably discharged from the armed forces.

Tennessee's Insurance Commissioner James M. McCormack last fall refused a license to an automobile dealer who sought to write insurance for Motors Insurance Corp. In his order, which governed also the cases of more than 100 other automobile dealers, Mr. McCormack said:

"It would appear that control exercised by General Motors Corp. of the agents of Motors Insurance Corp. would tend to violate the anti-trust laws and create a monopoly. It would appear that under the Motors Insurance plan, it is not to appoint agents for the purpose of acting as bona fide agents, but only agents for the purpose of being subsidized with the payment of a commission for which they render no service."

Eoff to Shift Hdq. to Building in Portland

PORTLAND, Ore.—Eoff Electric Co., distributor of electrical appliances, has acquired from Willamette university the three-story brick building at the northwest corner of N.W. 10th Ave. and Glisan St., here, according to G. A. Charlston, local manager.

Sunset Electric Co. now occupies the building, but will vacate it about March 1 of next year. After completion of remodeling, Eoff Electric will move in, at the same time transferring the company headquarters from Salem to Portland. The Salem and Eugene houses of the firm will then operate as branches.

Eoff Electric is distributor of Monitor Equipment Corp.'s complete line of home appliances in Oregon, southern Washington, and northern California. The concern also distributes General Electric products and a number of other national lines.

Real Estate Man Heads New Distributing Firm

NEWARK, N. J.—Morris Biddle, Newark real estate operator and developer, heads a new concern which will distribute electrical appliances here. To be known as Biddle Appliance, Inc., the new organization has opened offices and display rooms at 83 Roseville Ave., this city. It planned to begin active distribution early in January. Space was being prepared for service and installation departments.

'Biggest Appliance Dept.' Seen By Furniture Store

ASHEVILLE, N. C. — Sterchi Brothers Furniture Store will have the biggest appliance department in the store's history when products are available, according to N. J. Miles, asistant manager.

Complete line of domestic Frigidaire appliances, Apex washers, ironers, and vacuum cleaners, and Philco and RCA radios will be on sale, Mr. Miles stated.

Dept. Store Tries Appliances in Crawfordsville Branch

CRAWFORDSVILLE, Ind.—Goodman's Department Store has opened an electrical appliance section in the newly remodeled section of the Crawford hotel building to retail refrigerators, air conditioning units, radios, and other appliances manufactured by General Electric, Philco, and RCA.

Although Goodman's has stores in several other Indiana cities, appliance selling was announced only for the Crawfordsville store.

Form Calif. Appliance Co.

SAN FERNANDO, Calif. — San Fernando Appliance Co., Inc., has been formed here with a capital of $25,000.

Directors of the firm are William and Esther A. Stephens, both of Glendale, Calif.; and Ethel M. Petersen, of San Fernando.

Management Grins as Fire Razes Store Area For It Proves Blessing

ST. LOUIS—Stein Furniture Co. here, large-scale appliance retailer, was all set for postwar appliance merchandising last July, when the store started taking applications for them, and had its outside selling system worked out.

Then a disastrous fire came along and wiped out the entire store section devoted to refrigerators and washing machines.

The management has rebuilt the store, this time including an entirely new appliance layout which incorporates 2,000 sq. ft. of extra floor space.

"In a way the fire helped us," the manager grinned, "because our July layout would not have been sufficient to meet the actual business conditions of today. We hadn't expected such a demand for home freezers, automatic laundry equipment, water heaters, etc., as now exists.

"So the 2,000 sq. ft. of extra space will be devoted to a home freezer department, a new range section, automatic home laundry with demonstration facilities, and a complete service shop repairing and overhauling all types of major appliances."

The store is planning an all-out outside sales program aimed at appliance prospects who will be obtained from grocers, druggists, and other retailers in continual touch with homeowners.

Cabinet Engineer

ORLAND H. YOXSIMER

* * *

Yoxsimer to Supervise Westinghouse Cabinets

EAST SPRINGFIELD, Mass. — E. R. Wolfert, manager of the Westinghouse Electric Appliance Division's East Springfield plant engineering department, has announced the appointment of Orland H. Yoxsimer as manager of the household refrigerator cabinet engineering division.

Mr. Yoxsimer, who has been employed at Westinghouse since 1927, will be responsible for the coordination and development work on household refrigerator cabinets at the East Springfield and Mansfield, Ohio, plants of Westinghouse. He will be stationed at the Mansfield plant where he has been section engineer of cabinet engineering since 1938.

Mr. Yoxsimer has 14 patents on refrigerator cabinet construction, including a rolled shell flange design; glass top crisper pans and five basic construction patents.

Golden Rule Shop Takes Lease on 5-Story Bldg.

CINCINNATI — The Golden Rule Electric Shop has negotiated a long-term lease on a modern five-story fireproof building at 116 W. Seventh St. in the midtown retail shopping area here.

The street floor of the new unit will contain a modern display section, parts department, and executive offices. The second floor will have complete service department with expanded line of merchandise.

Upper floor will be devoted to sales and display rooms, including kitchen cabinets, heating equipment, furniture, refrigerators, radios, air conditioning, and other home appliances.

Atlanta Firm Starts Expansion by Adding Lines and Remodeling

ATLANTA—With the remodeling of its showroom and the addition of several new appliance lines, Refrigeration Exchange, located at 237 Pryor St. here, has taken first steps in its planned expansion program, according to Ed. Rawls and Harry Mislow, owners.

Present plans, it was further announced, call for the addition of a complete line of equipment and supplies for hotels and restaurants, as well as a full line of large and small home appliances, including several lines of refrigerators, waffle irons, fans, and electric irons.

Among the new appliance lines recently added by Refrigeration Exchange are: Thor automatic washers, ironers, and dish washing machines; and Admiral radios and refrigerators, the owners stated. The firm also distributes the Hill line of commercial refrigeration (featuring metal walk-in and reach-in boxes, beverage coolers, and display cases); Tyler commercial refrigeration (Harder-Freeze frozen food cabinets, including 12-cu. ft. boxes); and Curtis compressors.

The firm also handles custom-built equipment made according to individual specifications, and maintains a service department under the supervision of C. H. Cofer.

Now completely remodeled, the Refrigeration Exchange showroom is said to be the largest display floor for electrical appliances in the southeast.

Kinney Opens Headquarters In San Joaquin Valley

FRESNO, Calif.—Kinney Bros. of Los Angeles recently opened San Joaquin Valley headquarters here for the distribution of ironing appliances, electric ranges, radio tubes, heaters, and traffic control devices under the management of E. Edward Faust, it was announced.

The firm has taken a long term lease on its building, which has a floor space of 27 x 150 ft. The space is used principally for displaying appliances for dealers' inspection. No retail sales will be made, it was disclosed.

Modern Appliance Named Freezer Distributor

SAN MATEO, Calif.—The Modern Appliance Co. has been appointed distributor for the line of frozen food cabinets manufactured by the American Refrigerator & Machine Co., of Minneapolis, Minn., announces Charles R. Rogers of the distributorship.

Hussmann's $1 Million Expansion Program Will Boost Output 4 Times Prewar Levels

ST. LOUIS—If Hussmann-Ligonier Co.'s $1,000,000 expansion program now being developed works out according to the "blueprints," output will soar to four times that of the best normal years.

Through the sale of preferred stock, the company acquired the necessary finances to carry out this postwar program involving construction of two new buildings, installation of new machinery and equipment, and improvement of working capital.

Manufacturing facilities are being enlarged and improved at a cost of $750,000, Hussmann reports. Other phases of the firm's peacetime plans, already well under way, include the aggressive merchandising and promotion of Hussmann's food store equipment.

SHIPMENTS DOUBLED

The new buildings, an addition to the porcelain plant and a woodworking plant, were slated for completion by the end of 1945, but inclement weather and strikes put construction and production schedules back several weeks, the company said. Despite these handicaps, Hussmann's civilian shipments at autumn's end were more than double that for a normal year, it was stated.

Purchase of ground for the porcelain plant annex gave the company the entire double city block bounded east and west by Leffingwell and Glasgow Aves., and north and south by Benton and N. Market Sts. The wood-working plant is going up on the east side of Leffingwell, across the street from the main manufacturing building. Total increased floor space will be about 100,000 sq. ft.

Extending 234 ft. west on Benton from the end of the porcelain plant and south on Glasgow, the addition will house equipment for the fabrication of all metal work. The raw metal will be brought in at the west end of the plant to be started on its processing journey.

AUTOMATIC FINISHING

The metal will hit first the forming machines, be moved on through cleaning, spraying, baking and other processes, and wind up in finished parts racks adjacent to assembly lines. According to the company, the new finish baking machinery will be fully automatic and represents an investment of some $150,000.

To be connected to the second floor of the main building across the street by an overhead areaway, the woodworking plant will have a frontage of 234 ft. on Leffingwell Ave., and extend 150 ft. east on N. Market St. This two-story building will be of reinforced concrete faced with brick and will be used to handle the wood or mill work needed for Hussmann products.

Parts made in the mill will flow through the areaway to the main building, where equipment will be assembled and completed. Construction of the mill was planned so the lower floor could be put in use while the second story was still being worked on.

Completion of the buildings will find Hussmann's field sales force, maintained throughout the war period, set to carry out its role in the expansion program, the company says. Although engaged 90% in military production during the war, Hussmann reports it kept in close touch with developments in both the refrigeration and food fields and is now prepared to exploit profitably this knowledge.

WAR EXPERIENCE

"The experience gained during that time (the war period) in working out jointly with outstanding processors, packers, wholesalers, and store groups, merchandising problems paramount to the fixture of stores, has been made a part of the knowledge that this group can bring to dealers and store operators," the company states.

The man assigned to direct application of this knowledge to merchandising is W. J. Stelpflug, vice president in charge of sales. Assisting him are A. B. Biddle, general sales manager of regional accounts; Al Viragh, sales manager of national accounts; and B. R. Davidson, sales manager of the refrigeration division.

Bulk of the follow-through on national accounts is being shouldered by two field men, E. G. Hopkins, eastern manager, and C. A. Berris, western manager. Some of the contacts with large national chains are made by Mr. Viragh, who is also responsible for development of export business.

Working regional accounts are Austin C. Campbell, Ralph Tabert, B. A. Greenspan, Jim Manahan, H. E. Nash, E. L. Hill, C. A. Hulsman, and Ed Behnken.

Allied Control Co. Buys Transformer Concern

NEW YORK CITY—Allied Control Co., manufacturer of relays and electronic devices, has acquired the B. F. Miller Co. of Trenton, N. J., producer of transformers, announces E. H. Gillette, Allied president.

The Miller company was organized in 1910.

Baker Employes Share Firm's Largest Bonus

OMAHA, Neb.—Employes of the Baker Ice Machine Co., here, were paid the biggest Christmas bonus in the company's history, just prior to Christmas.

Every salaried employe and shop workman from the highest down were included. Based on length of service and base rates of pay, the bonuses paid were from five to 50 times previous bonus payments.

"In paying this biggest Christmas bonus," said William B. Winslow, vice president and general manager, "we are following what we believe to be sound policy. The Baker Ice Machine Co. wants to pay well for good work done and to share our prosperity with those who work with us.

"We feel that every Baker employe who has turned in a good year's work is entitled to a fair share of the profits earned."

Baker, now under new management, has also announced a sweeping improvement program. The factory will be reorganized and retooled.

All-Electric Galleys Designed for Railway Diners By Hotpoint Include Frozen Food Compartments

CHICAGO — Electric galleys for railway dining cars, adaptations of the electric galley developed for United States Navy submarine cooking are being designed for presentation to approximately 30 national railways, Edison General Electric (Hotpoint) Appliance Co. officials report.

Batteries of newly designed electric commercial cooking equipment previously unknown to railway food handling, are being planned into compact galleys with the aim of bringing greater efficiency and convenience to dining car operation, Grant Call, manager of the company's commercial cooking equipment division said. The equipment planned includes heavy duty electric ranges, automatic electric broilers, bake ovens, deep fry kettles, kitchen waste disposalls, electric dishwashers, grills, griddles, and coffee makers, as well as freezing equipment including subzero freezing-storage units and electric refrigerators.

While the cooking equipment for the conversion of railway diners to electricity is not new in basic design, much of it was improved in compactness and flexibility for wartime Navy demands. The submarine galley has been said to be the "most efficient galley in the world," having rooms, that in some instances were 8 x 12 ft. with food handling capacity for a crew of 90 men.

Sub-zero freezing compartments making possible handling of frozen pastries, fruits, vegetables, and other provisions will be used for railway dining for the first time when these cars are ready for service.

Gordon Mueller Named Ebco Representative

LONG ISLAND CITY, N. Y.—Gordon A. Mueller, Inc., announces it has been appointed exclusive metropolitan New York distributor of Ebco Oasis electric water coolers.

Sales Training Program, with Films and Manuals, Ready for Dealers

N.E.W.A. and E.E.I.-Sponsored Course Uses Techniques Developed for Army and Navy

NEW YORK CITY — The initial elements in the electrical industry sales training program, one of the most comprehensive and far-reaching training programs ever undertaken for the benefit of the entire industry, will be ready for delivery and use by electric power companies, manufacturers, wholesalers, dealers, and other branches of the industry by the end of December, according to the Edison Electric Institute, and the National Electrical Wholesalers Association, co-sponsors of the program.

TO PLAY MAJOR ROLE

The program will play a major part in training the industry's sales personnel, now being rapidly augmented to handle the postwar market which is expected to reach record-breaking heights in the industrial, commercial, and residential fields.

It consists of a course of 18 sound-slide films, an equal number of silent trailer films, with salesmen's manuals and leader's guides to accompany each film. This program will provide rapid, thorough training for the host of new salesmen with little or no sales experience, and should prove invaluable as a refresher course for older salesmen and returning veterans of the armed forces.

Preview showings of the films are being made this month at industry gatherings throughout the country. A showing for the trade press was held on Dec. 12 at the Hotel Commodore, New York City, in conjunction with a National Electrical Wholesalers Association meeting. The Wholesalers Association has provided helpful counsel in the development of the Basic Sales Course program, and is undertaking vigorous promotion through its membership from coast to coast.

PROGRAM COVERS FIELD

The program is suitable for training the sales forces of manufacturers, wholesalers, contractors, dealers, and utility companies. Trained salesmen will make an important contribution to the economic health of the nation. Because of the sharply competitive market, the training of electrical industry salesmen should be second to none in the selling field.

Produced by Vocafilm Corp., under the supervision of the Institute's Sales Training Committee, in cooperation with the National Electrical Wholesalers Association, the course employs the same techniques applied successfully by Vocafilm in the production of training films for the Army and Navy. These dramatic presentations expedite thorough and comprehensive instructions for the new man, and an effective refresher for the more experienced sales people.

The first eight Basic Sales Training meetings cover the fundamentals of sales technique, such as: how to make the most economical use of selling time, how to view the sale through the eyes of the customer and say the right thing at the right time, and how to arrange sales presentations in a logical pattern. Sound slide films analyze the basic impulses behind every sale, how to obtain recognition of the prospect's need, how to demonstrate and prove the benefits of the electrical appliance, and how to establish the prestige and quality of the product and the firm. Demonstration sales are made at each meeting, with criticism and discussion following.

ADVANCED TRAINING

After providing this basic training, the Program progresses to the application of those techniques to selling specific services. Four meetings for residential salesmen apply the basic sales principles to selling the electric range, water heater, refrigerator, and home laundry. Four commercial films dramatize the selling of store lighting, office and school lighting, commercial cooking, and motor applications such as ventilating and air conditioning.

Two rural meetings show how to help the farmer to become a more successful business man, and illustrations of various profitable farm applications of electrical appliances. While no films will be available for training industrial sales representatives, a Leader's Manual, correlating the eight basic meetings of the sales training program with the present Power Sales Manual, has been developed.

TRAILER FILM USED

The silent trailer film, which accompanies each sound film, points up the sales situations put across by the sound story, and is intended for discussion and analysis by the student salesman. These discussion films will then enable the men to apply principles demonstrated by the slide films to their own particular sales problems.

The leader's guides supply a blue print of each meeting for the instructor to follow in directing each meeting, and show him the most profitable ways in which to employ the discussion films. Each guide gives a complete outline of the meeting, in so much detail that even a comparatively inexperienced man can conduct successful and interesting meetings.

SALES MANUAL

The salesmen's manual, which the trainee receives at each meeting, puts into print what he has seen and heard during the film, with additional information for home study, and then becomes the salesman's permanent reference. A self-analysis section in each manual allows the salesman to check up on his own methods, and work out methods of improvement.

The need of the industry for such a program is indicated by the fact that more than 60 utility companies ordered, in advance of the preview showings, half of the initial allotment of films from the producer, according to C. E. Greenwood, EEI Commercial Director.

Representatives of member companies of the Institute who are participating in the development of the program include: Davis M. DeBard, Stone & Webster, Inc.; Ford Bates, Nebraska Power Co.; R. S. Bell, The Commonwealth & Southern Corp.; Paul Brooks, Ebasco Services, Inc.; John L. Burgan, New York State Electric & Gas Corp.; A. C. Crandall, Indianapolis Power & Light Co.; R. F. Hartenstein, Ohio Edison Co.; J. D. Howard, Wisconsin Power & Light Co.; H. P. Megargee, American Gas & Electric Service Corp.; J. E. North, The Cleveland Electric Illuminating Co.; J. S. Schuchert, Duquesne Light Co.; Charles Snyder, Monongahela West Penn, Public Service Co.; C. A. Stevens, Public Service Electric & Gas Co.; and R. P. Wagner, New York Power & Light Corp., who is also chairman of the Films and Records Committee assisting Vocafilm Corp. in production.

OTHER COMMITTEE MEMBERS

Robert C. Hill, Director of the Appliance Division of NEWA, represented that Association in the preparation of material for the eight basic sales training meetings. The material was reviewed by the NEWA Publicity, Sales Promotion and Sales Training Committee, of which G. F. Kindley, Edgar Morris Sales Co., is chairman. Other Committee members are: A. F. Gould, Central Electric Supply Co.; K. B. Hopkins, Graybar Electric Co., Inc.; P. D. Karsten, The Plymouth Electric Co.; L. P. Kefgen, Northern Supply Co.; S. Roskin, Roskin Distributors, Inc.; W. G. Staltz, Supplee-Biddle Co.; Adolph Ullman, Northeastern Distributors, Inc.

Bendix Home Appliances Names District Sales Chiefs

C. E. BARNICKEL — H. W. LUKER — R. J. McDONALD — FILMORE C. DOYLE

Mr. Barnickel has been appointed Bendix Home Appliance sales manager for Kansas, Missouri, Tennessee, and Arkansas; Mr. Luker heads sales in the southwestern division with headquarters in Ft. Worth, Tex.; Mr. McDonald will direct sales in the Middle Atlantic states, headquartering in New York City; Mr. Doyle is the new Los Angeles sales manager.

Allan to Manage Dealer Section for West Penn

PITTSBURGH — T. G. Allan has been promoted from assistant manager to manager of the dealer section of West Penn Power Co. and J. H. Mullen moved up from general supervisor to assistant manager of the section, the power company announced.

Mr. Allan replaced W. D. Peters, who resigned to become district manager in the home appliance department of General Mills, Inc. Assistant manager since 1944, Mr. Allan joined West Penn in 1931 as a salesman for the appliance department and later became senior dealer representative.

Mr. Mullen has been with West Penn for 21 years. He was a salesman and sales supervisor until organization in 1937 of the dealer section when he was made dealer supervisor. He was appointed general supervisor in 1943.

Appliances to be Displayed 'In the Hollywood Manner'

LOS ANGELES — The glamorous Hollywood Decorative Studio here has incorporated a separate company which will retail major appliances under the title "Hollywood Decorative Appliances, Inc."

David J. Sawaya will head the new company, which will feature planned model kitchens and "dramatized" household appliances in bright colors.

The firm is remodeling a building at 624 No. La Brea Ave., which will be one of the country's outstanding appliance showrooms. The front will be of structural and plate glass in combination, with an oval doorway, and a plastic canopy. There will be around 4,000 sq. ft. inside, in which sensational displays of major appliances will be set up "in the Hollywood manner."

Mass Production & Sales Add Problems for Frozen Foods

SAN FRANCISCO—The American food freezing industry has been almost doubled in size and output by war demands since 1941, and now, as a major industry, it is attempting to solve some of the more crucial problems with which it is faced, according to a recent survey.

Foremost among these problems, in the opinion of a western frozen food expert, is that of bacterial control in pre-cooked foods.

"If any cases of frozen food poisoning should occur from certain bacteria which aren't killed by freezing," he said, "all frozen products would acquire a bad name." Further research on pre-cooked foods in general is listed as a problem, since bacterial control is not yet fully understood, the survey states.

RESEARCH NEEDED

In addition, fats, particularly pork, become rancid if kept too long in spite of cold temperatures; certain food mixtures, such as oil and egg emulsions, separate on freezing and may not reconstitute successfully; and milk is curdy when thawed after freezing. These are all problems that must be solved by further research, it was reported.

The best varieties of fruits and vegetables for freezing must also be determined in research laboratories. Thus far, trial and error has proved that frozen greengage plums discolor and become soft upon defrosting, but they are excellent for canning, it is pointed out.

While canners avoid peaches with red centers because they discolor in processing, freezers have learned to seek them out. The red center stays bright in freezing and adds to the attractiveness of the package.

Hunt and peck methods, not product research according to this survey, have shown that garden-type peas freeze better than the small variety developed for canning.

Freezers in the northwest, it is reported, are trying to develop blackberries, strawberries, and blueberries with a wild flavor but a cultivated yield and size. Other packers are taking time to test for the best growing areas—for example, it is a fact that broccoli raised in one region freezes better than the same variety grown elsewhere.

Market research is another major need in the food freezing industry. A. H. Harrison, secetary of the Western Frozen Foods Processors Association, puts it this way: "What we need is a big research project on consumer intentions. We don't really know if frozen foods' popularity has grown because they were point free, a novelty, or because working women had little time and lots of money.

"In many cases, also, the price of fresh produce has been way out of line and so minimized the difference between the two," he concluded.

Food freezers point out that retail costs of frozen foods often are higher than for fresh produce, but there is no wastage, and there is a saving in time and convenience. Such men hope to eventually educate housewives to their viewpoint. Then, too, increased mechanization is counted on to steadily reduce the cost of frozen products, the survey continues.

The need for better packaging is also cited as a problem to be solved if the frozen food industry is to maintain its top-ranking place.

As a result in part from its war work in packaging TNT for the Armed Forces, the American Can Co. is now perfecting and testing a new fiber-metal can for frozen products.

Other container ideas include laminated foil, aluminum-lined bags, and packages dipped in thermoplastic waxes for a complete seal, it is reported. Because of the danger of dehydration, completely air-tight containers must be used.

DEFROSTING PROBLEM

Defrosting is also rearing up as a major problem, if frozen produce is going to compete with fresh, the article states. Apples, apricots, peaches, figs, and strawberries turn brown and become "mushy" when thawed. In the larger "baker-size" packages of 30 to 40 pounds, the outside fruit is inclined to spoil before the center is thawed out.

To solve this problem, one bakery division of a large eastern chain store has devised a dielectric unit that defrosts a consumer container in 11 seconds, and a 30-pound carton in 15 minutes instead of 70 hours. (See June 18, 1945, issue of the NEWS.) This is believed too expensive a gadget for home use at present, however, the report states. It may be more practical for bakeries, jam-makers, and hotels.

Although western food freezers turned out over half of last year's frozen fruit and vegetable production, the question as to whether the west or the east will lead in the future is on the lips of many, it is reported.

Nearness of the east to the big markets, thus cutting out freight costs, is cited as an obstacle to western producers by one refrigerating and freezing expert which outweighs the fact that some western freezers can operate plants the year-around. Seasonal vegetables or fruits, for example, in the east or midwest would be rounded out with poultry or meat freezing during off-months, the article points out.

Peacetime casualties may be suffered by California's frozen pack, since it was 78% peaches and apricots which, along with a large prune and apple pack from the Pacific northwest, went mostly to bakers who couldn't get canned fruit. Pumpkin and squash also had a wartime boom because of the tin scarcity, and because other ingredients for making pies were scarce, it is reported.

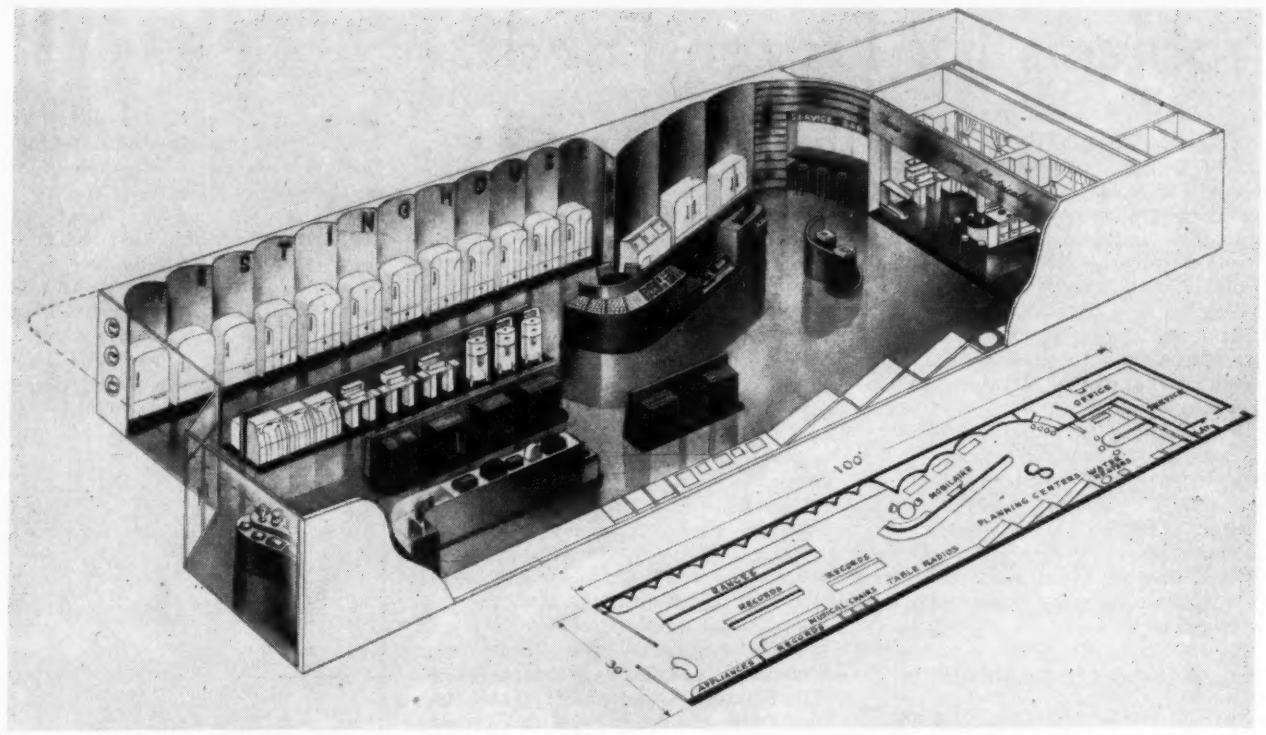
Peas, the biggest frozen item in the country, are next to the smallest in California, while the state's leading vegetable packs of broccoli, cauliflower, and Brussels sprouts are small nationally.

Many types of produce, never before offered to the consumer in frozen form, are being introduced. The freezing of complete, pre-cooked meals was reported in the May 7, 1945, issue of the NEWS, and is considered by freezing authorities to be in for further development, according to the survey.

Frozen baby foods and pet foods are likely in the near future, along with oven-ready stuffed roasting hens. One California company is already offering frozen cleaned and dressed turkey by mail order, the article states. They are shipped in dry ice and cost about .12 per pound extra. Other poultry freezers are planning "specialty" frozen chicken packages consisting of four drumsticks or four breasts and two drumsticks.

A Chicago company is freezing thousands of uncooked muffins, cookies, buns, fruit pies, etc.

One Floor Plan For Refrigerator and Appliance Displays



Above miniature layout shows a proposed design for a long, narrow store. The refrigerator specialties section is treated as a separate unit for maximum selling efficiency. Combination kitchen-laundry draws traffic to back of the store. All displays in the general area are low, to allow unobstructed view of the store from any angle. Floor plan shows what's planned on other sides of display islands.

* * *

An Outline of 'Good Practice' In Store Arrangement & Lighting

By J. G. Baird, Sales Promotion Manager, Appliance Division, Westinghouse Electric Corp., Mansfield, Ohio

We are more apt to give product display its rightful place in our planning and thinking if we fully appreciate the fact that the right use of display is as vital to successful merchandising as advertising, sales training, and sales personnel. Good display speeds the selling job by making merchandise easy to want, easy to buy, easy to sell.

The size and condition of your store, its location, the competitive situation in your neighborhood, the amount of money you have to spend, will determine the kind and number of improvements you may make. But, whether you do a simple or an elaborate job, invest thousands of dollars or just a few—the fundamentals are the same.

To begin your job of store modernization go across the street, stand on the curb, and take a good look at your store. Does it do a good job for you in competition with the other store fronts in the neighborhood? Does it tell at a glance what business you are in and who runs it? Does it look like the sort of a store that you would go to for your kind of merchandise?

Store Front and Windows

The job of the store front is to attract customers to your store and to serve as a frame for the display window. The treatment of the front should help accentuate the merchandise on display—should not compete with it.

After the store front has attracted the customer, it is up to the window display to stop her and convert that "passing glance" to a good second look and then get the customer to come into the store. This objective can be accomplished by the right combination of lighting, coloring, and handling of merchandise. The successful window background stays in the background and pushes the merchandise into the public eye.

A good general lighting of the window is imperative. This may be supplemented with spotlights used to direct the eye to featured products or to highlight several products.

Do not attempt to establish your window coloring until the intensity of lighting has been established. Colors look different according to the light in which they are exposed, so check your color samples in daylight and at night, under both fluorescent and incandescent light.

Whether the window background itself be screens, or panels, or fabric —whatever you do, do not place high luster merchandise like refrigerators and table appliances in front of a shiny background. Dull finished materials provide the dramatic contrast that emphasizes the sparkle of the products and shows them to best advantage.

Recommended Lighting

In lighting the electrical appliance department inside the store, you should establish a lighting level that will help convey the spirit of modern electrical living. Lighting should enable shoppers to inspect merchandise comfortably. The source of light must not be obvious and the fixtures should appear to be a part of the basic store design. The lamp itself should be shielded to avoid glare.

A general rule for appliances is to use 35 to 50 ft. candles for overall illumination and double that amount in showcases and in special display arrangements.

Here again spotlights should be used to highlight merchandise or to attract attention to special displays.

On approaching the problem of coloring for a store interior, many

(Concluded on next page)

An Outline of Good Display Practice--

(Concluded from preceding page)

factors are involved—but perhaps the most important is the level of store illumination. Here again color samples should be checked in the actual lighting, as colors vary greatly under type of lighting and light intensity.

In the display areas color may be used to set the mode for a particular kind of product. For example, cool greens and blues for refrigerators—warm glowing reds for electric ranges, gay colors for gift appliances.

In approaching the problem of laying out the store space and allocating products to various floor areas, the first principle is to try to keep all high products, such as refrigerators, against the wall. The practice, much too common of placing refrigerators back to back in the general floor area or grouping them around columns not only cuts off the view of most of the other merchandise, but also gives the appliance department something of a cemetery look.

Keep 'Em Running

Another interior display principle is to have all refrigerators connected so lights operate when the doors are open, and to have all ranges connected to 110-volt lines so surface and oven lights operate. It is only necessary to have a demonstration range connected to a 220-volt line.

And a third principle is to provide everything necessary to do a complete demonstration job. This is particularly true of the automatic cycle washer. Customers want to see soiled clothes go in—and clean clothes come out. In selling the dryer, the customer wants to see wet clothes go in and dry clothes come out.

This may mean a serious installation problem and considerable expense in providing adequate hot water, drain, and wiring facilities—but the investment will pay off in increased sales.

Ideal Demonstration Room

The ideal demonstration room is the complete kitchen and complete laundry, for here the demonstration can be made in a home-like setting. There is a tremendous interest with the homemaker today in the first floor laundry which has been made possible by the automatic cycle washer and dryer. This means that the combination kitchen-laundry is the ideal demonstration center where adequate space is available.

The kitchen-laundry, in addition to product demonstration facilities, serves as a selling center for kitchen cabinets and helps the homemaker visualize and plan her own complete electric kitchen and laundry.

Vacuum cleaners, too, must be demonstrated if they are to be sold. Carpet is, of course, a "must," but why not use swatches of various kinds of carpeting so the demonstration can be made on a piece of carpet similar to that in the prospect's home.

A very effective vacuum cleaner selling center can be developed in a living-room setting that provides all the accessories necessary to demonstrate cleaner attachments. These can include venetian blinds, drapes, upholstered furniture, and floor lamps.

What About Platforms?

One of the debated questions is the use of platforms under major appliances. We feel that a platform gives added importance to the product, but it should be used only with products that cannot be moved. For example, you would not use a platform with the wringer washer or the ironer. In either case the product may be rolled off the edge of the platform. Then, too, you may want to seat the prospect to the ironer for a demonstration.

Where a platform is used, we suggest that it be no more than 4 in. high or 28 in. deep—just big enough to hold the appliance. The customer does not want to be put on display so she will not stand up on the platform for a demonstration.

On table appliances it is rather generally agreed that it takes mass display to do the best job. This massing of products, however, should be patterned masses that convey an impression of wide selection, yet permit the eye to quickly pick out a single item for closer inspection. Appliances of each type should be kept together for easy comparison and they should be well spaced and within easy reach for customer examination.

The service department has come into its own during the war years. Many an appliance dealer has found this a profitable operation. Then, too, the service department customers are the perfect prospect list for new merchandise as it becomes available. The service department should be taken out of the "greaseball" operation and given not only adequate floor space and equipment, but a display treatment of the service counter that recognizes the importance of this operation.

Remember that most of this business in the store is done with women—so make the treatment of the service counter attractive to women. This suggests interesting coloring and smart display of replacement items. Why not provide stools so the customers may be comfortable while waiting for the quick repairs.

If the repair shop itself is neat, well organized, and attractively colored, you might consider providing a glass panel so the repair operations may be viewed from the store to capitalize on this end of the business.

Making the Layout Yourself

On approaching the problem of store layout, the following steps are suggested:

1. Draw an accurate scaled plan of the floor of your store—probably about ¼ in. to the foot. Indicate all columns, door and window locations, stairs, etc.
2. Make a list of all products that you want to display. Make up this list by brand names and the number of items of each kind.
3. Make cut-out paper units for each appliance in the same scale as your floor plan. Make enough of these to cover off the full list of appliances you plan to display.
4. Make paper cut-outs to represent kitchens and laundries and other special display or space taking elements.
5. Try to fit these pieces into the available floor space. If it appears that you cannot do an adequate display job on a large number of lines—then it is best to do a good job on fewer lines. Keep all products of a type together and arrange them for step-up selling.
6. After you have succeeded in achieving a good arrangement of the product—then determine your display treatment.
7. At this point check your lighting to be sure that you will have not only good general illumination, but supplementary spotlights located where they can highlight the merchandise. Plan both your display and your lighting so they are flexible.
8. After establishing the light intensity for the store, then make up your color selection.
9. Plan the store wiring so that adequate facilities are available to do a good display and demonstration job. At the same time provide for plumbing and drain facilities.

The Purposes of Good Display

As you tackle the job of planning your store, remember that display is not an end in itself, but is simply a means to selling merchandise. That means it must, to be effective, make merchandise easy to want—easy to buy—easy to sell.

Easy to want means the merchandise must be attractively displayed so it looks desirable—like something the homemaker would like to own—would like to see in her own home.

Easy to buy means that she must understand all the sales points that are made. She must find it easy to compare features—preferably with products side by side, arranged in a line.

Easy to sell means that the product must be arranged for selling—either up or down; that adequate demonstration properties are available; that lights operate; that the entire atmosphere of the store and of each selling center is conducive to sales making—not simply to expedite a quick sale, but in a way that assures complete long time customer satisfaction.

Prices Established on Candy and Produce Case

MILWAUKEE — Distributors will pay $250, dealers $275, and consumers $325 for an 18-cu. ft. air conditioned candy case produced by Federal Store Equipment, Inc., here, OPA recently ruled. The prices for this case, equipped with a ¼-hp. condensing unit, were fixed by Order 156, MPR 591.

They'll Do It Every Time . . . . By Jimmy Hatlo

☆ *Buy VICTORY Bonds* ☆

Trade Mark registered U. S. Patent Office; Est. 1926

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

AIR CONDITIONING AND REFRIGERATION News

Copyright, 1946, Business News Publishing Co.

F. M. COCKRELL, *Founder*

Published Every Monday by BUSINESS NEWS PUBLISHING CO. 450 W. Fort St., Detroit 26, Mich. Telephone Randolph 0924.

Subscription Rates: U. S. and Possessions, Canada, and all countries in the Pan-American Postal Union: $4.00 per year; 2 years for $7.00. All other foreign countries: $6.00 per year. Single copy price, 20 cents. Ten or more copies, 15 cents each; 50 or more copies, 10 cents each. Send remittance with order.

GEORGE F. TAUBENECK
Editor and Publisher

PHIL B. REDEKER, *Editorial Director*

C. DALE MERICLE, *Associate Editor*
ROSS H. POTTER, *Associate Editor*
JACK SWEET, *Assistant Editor*
Editorial Assistants: BARBARA LEE, MARCELLA PRICE, FRANCES WEED, AND LORRAINE MCNINCH.

ELIZABETH SMITH, *Assistant Bus. Mgr.*
MACIL STEPHENS, *Asst. Adv. Mgr.*
ED HENDERSON, *Circulation Mgr.*
RUTH RICHARDSON, *Subscription Mgr.*
WALTER J. SCHULER, *Production Mgr.*

On leave of absence to serve our country:
U. S. Army: GEORGE L. COLLINS, GEORGE M. HANNING, AND HUGH T. MAHAR. *U. S. Army Air Forces:* GEORGE WATKINS AND WILLIAM WALTER. *U. S. Coast Guard:* MERTON GLUTTING. *Waves:* MARGARET MARR AND LYNDON BRODE.

Member, Audit Bureau of Circulations. Member, Associated Business Papers.

VOLUME 47, NO. 1, SERIAL NO. 877, JANUARY 7, 1946

It IS Happening Here!

SO it can't happen here, eh? Gentlemen, it *is* happening here. Fascism *is* fastening its strangling tentacles around the American Way of Life.

Call it what you will—fascism, communism, statism, or totalitarianism—the regimenting power of the state over the individual is moving more rapidly than ever over the American scene.

The trend started back in 1933. Mile by mile the shadow of government control moved across the land. And today we have the unprecedented situation in which a President of the United States proposes that a government board fix wages, prices, and profits for a particular corporation.

That's it—the end of the line. If that rule is enforced, private enterprise is dead.

Harsh words? Not at all. Look what the principle leads to: If everyone is paid the same wages, by government edict, what's the incentive for working harder, or learning more about a job? If all prices are to be the same, what's the incentive for turning out an improved product? If all profits are to be held to a certain percentage, what's the incentive to invest?

Our system—the greatest and most productive the world has ever known—is based on *incentives.*

Fascism is based on *control* and *leveling* of the people by a group of self-appointed "super men."

Which do we want?

There's so darned much going on in the world to confuse us that sometimes we don't realize just what's happening to us. The cataclysmic events of the war have dulled our sense of disaster.

Yet what is happening to us is simple to see and understand when separated out and looked over by itself. What's happening to us is that *we are losing control of our own lives.* We are heading back toward feudalism—toward the master-and-slave system.

Those eras recur periodically in human history. When they do, living standards drop to their lowest ebb. Learning, arts, and the sciences all but disappear. And freedom is extinct.

The issue is this: *the right to make our own decisions.*

Do we want some board of politically-appointed "super men" to decide for us what we shall eat and wear, where we shall work and for how much, what line of business we shall pursue and how far we can pursue it—or do we want to decide those things for ourselves?

Shall we just quit thinking entirely, and turn our lives over to the politicians?

1 Million Commercial Units Awaiting Replacement

Replacements Alone Will Tax Industry Capacity for the Next 2 Years

Editor's Note: An analysis of the replacement market in the commercial refrigeration field was presented to the Philadelphia A.S.R.E. recently by S. R. Hirsch of Brunner and Cecil Boling. In this issue the NEWS presents Mr. Hirsch's estimates of the condensing unit market, and in a future issue will appear Mr. Boling's analysis of the future of commercial low sides.

By C. Dale Mericle

PHILADELPHIA—At least a million commercial condensing units now in use will be replaced by new machines within the next two years and an even greater number of commercial low side coils will be needed for the replacement market. All this in addition to new sales.

These predictions were made at the December meeting of the Philadelphia section, American Society of Refrigerating Engineers, by S. R. Hirsch, chief engineer of Brunner Mfg. Co., and Cecil Boling, who heads the Cecil Boling Co. of New York City.

The commercial units produced to meet these replacement requirements will consist almost entirely of open-type machines, also declared Mr. Hirsch, while Mr. Boling stressed two important trends in low sides: (1) forced air units will probably replace gravity coils in all but special applications, (2) coils will be produced mostly in standard sizes and will be "strictly stock items."

Domestic Field

"To get a preview of a salesman's predictions and to show the method of estimating markets, we might first consider the domestic field," explained Mr. Hirsch. "This market is much more consumer-conscious than our own. It has been given most expert sales analysis and should serve as a starting point to study the method of predicting replacement potential.

"Up to 1940 there were about 23 million refrigerators in service. The life of a refrigerator is about 10 years, and since we can say that that number of sales was made in about 10 years, there is a 10% replacement potential. Thus the refrigerator manufacturer knows there is a replacement market of 2.3 million units per year," said Mr. Hirsch.

The household manufacturer also knows that new sales will be a problem because already there are refrigerators in 80% of all wired homes in this country, so the replacement market will be the major market, stated Mr. Hirsch.

Demand Is Created

Desirous of hitting an annual sales total of 4,000,000 refrigerators, the household manufacturers are forced to create a greater replacement market among the owners of units that are still serviceable, he continued.

One answer to this problem has been the promotion of modern styled kitchens with prefabricated work centers, and the success of this and other promotion efforts is indicated in the 1941 sales figure of 3,500,000 household refrigerators, said Mr. Hirsch.

"The replacement market for condensing units in this domestic market has very little interest for the independent service engineer," he pointed out. "Rare, indeed, will be the occasion when a replacement condensing unit will be sold without the box. Insofar as the manufacture of condensing units is concerned, all unit sales will be new sales, as they will go into new boxes. Very few units will go into replacement sales for installation in old boxes.

"If this cuts into the business of the independent service engineer, he will look elsewhere for his business, and I feel this group will take over the service requirements of the package type unitary assembly in the commercial field," stated Mr. Hirsch.

"The commercial market presents many complications in our efforts to study it. The market bulges over into the domestic size unit on the low end and into the industrial field on the large end.

New Industrial Uses

"In fact," he said, "it has been discovered that during the war many industrial users bought the products of the commercial manufacturer and were very much pleased with the results. There will be a rise in replacement sales through these outlets.

"The overrun into the domestic field tends to confuse the study of past sales, which size the future replacement potential," admitted Mr. Hirsch. "Many domestic size condensing units will be, and are, used by the commercial manufacturer. Certain sizes of home freezers, water coolers, vending machines, etc., are installed by manufacturers using domestic size condensing units.

"These volumes are grouped into the general sale of commercial units. They should be separated, if at all possible, because of a different replacement policy which differentiates unitary assemblies from those in which the condensing unit is remote from the fixture.

"It is not possible in a brief talk to attempt a breakdown by territories of the sale of condensing units," said Mr. Hirsch. "The entire sales volume must be totaled for the industry on a grand total basis for the whole country.

"It is possible, however, to approximate your share by figuring the population percentage of your area to that of the country as a whole. Refrigeration usage gravitates toward population centers and this method serves as a quick check on your share of replacement sales," he suggested.

3,000,000 In Service

Basing his estimates on trade association figures and government surveys, Mr. Hirsch said that the total number of commercial condensing units now in service is nearly 3,000,000, and that average sales from 1936 through 1940 were 325,000 annually (see Table 1). Annual sales from 1930 through 1935 averaged 215,000.

Of these totals, unitary systems (those systems employing condensing units under ⅓ hp.) represent 33% while remote installations (units

(Continued on next page)

Table 1--Number of Condensing Units In Service

Year	Average Yearly Sales Unitary	Remote	Total
1930 through 1935	40,000*	175,000*	215,000
1936 to 1940	90,000	235,000	325,000
Total Units in Service	690,000	2,225,000	2,915,000

*Estimated (perhaps low)

Table 2--Approximate Summary of Installations

Type of Installation	Total in Service
Frozen Food Cabinets	24,000
Ice Cream Cabinets	600,000
Drinking Water Coolers	500,000
Beverage Coolers and Vending Machines	600,000
Soda Fountains	170,000
Display Cases	443,000
Reach-in Coolers	491,398
Walk-in Coolers	161,238
Total	2,989,000

Annual Market

(Continued from preceding page)

over ⅓ hp.) account for 67% of the sales, he estimated.

With 3,000,000 units now in use, the annual replacement market should total about 300,000, using the 10% annual replacement factor, said Mr. Hirsch, who emphasized that this does not include a gradual yearly increase because of new installations.

"Contrary to the domestic picture, commercial refrigeration has not yet approached a saturated market," he declared.

"A recheck of the estimate shown in Table 1 is given in Table 2, which lists the most numerous types of installations in service up to 1943, as compiled by government task committees. This should be almost equivalent to installations up to 1940 because few commercial jobs were put in from 1940 to 1943 and those that were should about balance miscellaneous installations not included in Table 2."

Of the estimated 300,000 annual replacement figure, about 70,000 will be unitary models and 225,000 in the remote classification, said Mr. Hirsch.

"This relative proportion between unitary and remote may change as time goes on, but we confine our remarks to past performances which indicate that the independent service agency and jobber have a wonderful opportunity to build their importance because the replacement market alone is already almost equivalent to the yearly productive capacity of the condensing unit industry. But that is just the beginning," he emphasized.

"At the start of the war we were no longer able to serve this replacement market except in cases of emergency. It is hardly possible that 25% of this yearly requirement was met. Therefore, since 1941 there has been a 225,000-unit replacement deficiency each year, which starting in 1936, amounts to about 1,125,000 units.

Half Million Capacity

"If the production capacity of the industry at best is 500,000 units, we have more than a year's work ahead to satisfy the backlog, not counting new business which is crying for machines," declared Mr. Hirsch.

"Obviously, all manufacturers intend to expand or have expanded, but delays and shortages have embarrassed us all to the point where normal productive volume is still not in sight," he continued.

"We cannot get going fast enough to tackle the mammoth load facing us, yet there must be more settled conditions and corrections to the unbalanced production picture before manufacturers can show any appreciable improvement.

"Production specialists talk about May, 1946, as the date when some fairy will wave the magic wand and untangle the crippling forces which impede our progress. By that time, we should hit our stride and begin to really bite into the backlog now on our books.

"I want to mention briefly the matter of the type of condensing unit, which, in my opinion, will best serve the replacement market," continued Mr. Hirsch. "Before doing so, I want to impress upon you that these remarks are personal opinions and possibly may not be shared by my co-workers.

"In the condensing unit business, outsiders see a war on between the adherents of belt-driven units and those favoring the hermetic or semi-hermetic model. It is by no means, however, a fight to the finish, because if the design proves itself, it will be taken up by all manufacturers," he said.

"It would seem, however, from manufacturing cost studies that the design will for some time be confined to small sizes where volume production can absorb the large tooling costs which are involved in producing this model," predicted Mr. Hirsch.

"When we review the replacement market and see that most of our potential is obtained by renewal of the condensing unit only in remote installations, we actually eliminate the hermetic or semi-hermetic from consideration," he contended.

"On one point all manufacturers agree. There has to be most intimate collaboration between the hermetic manufacturer and fixture builder. No installation should be made until the hermetic manufacturer has assured himself that proper procedures are being followed by the fixture installer.

"To get a proper union between box and hermetic unit, positive and rigorous procedures must be inaugurated to assure system cleanliness and freedom from moisture, air, and foreign material," Mr. Hirsch declared.

Hermetic Problems

"While the belted unit has all of the refrigerant in contact with metallic surfaces, the hermetic has electrical windings and lead-ins covered with plastic. Any adverse chemical reaction within the system hardly affects metallic surfaces but does break down electrical insulation," he explained.

"Wear particles or foreign material can cause plugged orifices or leaking valves. It is, therefore, suicidal to consider the hermetic unit as suitable for a universal replacement machine. Therefore, it is my opinion that the belted unit will continue to be the choice selection for this service.

"We must rely upon the independent service man and installer to follow recommended practices and properly prepare old systems before connecting the new unit. Experience has shown, however, that field treatment can be given, and a belted unit joined, with entire satisfaction," contends Mr. Hirsch.

"A similar field preparation, no matter how carefully done, cannot assure a satisfactory hermetic installation because of the unknown chemical factor which might progressively start to attack after the system is put in operation.

"Are the belted replacement units going to be greatly different from types they supplant? We should say fundamentally they will be alike. There will be superficial changes, of course, but it has taken years to get the bugs out of the simplest condensing unit.

"It would seem a pity to throw that 'know-how' entirely away in the quest for something new just for newness' sake," he concluded.

(To Be Continued)

Refrigeration Problems
And Their Solution

By P. B. Reed

For Service and Installation Engineers

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

Temperature-Pressure Relationship

When a liquid is "boiling," the molecules that have been broken away and freed from the attraction of the other molecules in the liquid, fly away from the liquid, and if not stopped, continue in their flight, never to return to the liquid. Thus the freed molecules from an open pan of boiling water leave the water and pass away into the room as a vapor that we call steam.

If the water is in a closed vessel, such as a pressure cooker, the steam molecules strike the walls and top of the pressure cooker and bounce back, interfering with the escape of other outward bound molecules. The longer this continues, the greater is the number of free steam molecules that gather in the space above the boiling water, and the more that strike the walls and top of the cooker.

These thousands of molecules striking the inner walls and top of the vessel tend to push the walls outward and lift the top off; that is, they create pressure that continues to rise as more molecules are boiled off and collect in the enclosed space above the liquid.

WHY RISE OF PRESSURE REQUIRES MORE HEAT FOR BOILING

The more molecules that are above the liquid the harder it is for molecules to get out of the liquid, so more energy (heat) must be put into the water to overcome this extra resistance. Putting it another way: as the pressure on the surface of the water increases, the hotter the water must be in order to boil and release the vapor (steam).

Putting it still another way: as the pressure on a liquid rises, the temperature at which the liquid will boil, also rises. Conversely, as the pressure on a liquid becomes less, the temperature at which the liquid will boil, is lowered.

THIS PRINCIPLE MAKES MECHANICAL REFRIGERATION POSSIBLE

So this gives us a chance to change the boiling temperature of a liquid, (also the condensing temperature of a vapor) by varying the pressure of the vapor in the enclosed space above the liquid. A liquid can be made to boil (and take up heat in so doing) at a higher temperature than its normal boiling point, by increasing the pressure on the liquid to more than normal atmospheric pressure; or vice versa, it can be made to boil at a temperature below its normal boiling point, just by reducing the pressure on the liquid below normal atmospheric pressure.

WATER AS A REFRIGERANT

Water is a good example. In an open pan, that is, at normal atmospheric pressure, water boils at 212°. If it is in an enclosed vessel and under a pressure of 10 pounds per square inch above atmospheric pressure, it boils at about 237°. If the pressure is reduced to 10 pounds per square inch less than atmospheric pressure (5 pounds per square inch absolute or 20 in. vacuum) the boiling point drops to approximately 161°.

Water would do a good job of cooling or "refrigerating" an oven at 300°. A cylinder of water placed in the oven and vented to the space outside the oven would act just as the cylinder of sulphur dioxide referred to previously, except that the water would be boiling at 212°, and could not cool the oven below 212°.

In fact, it could not cool it that low, for the oven would have to be a few degrees hotter than the water in order to get the heat to pass from the air in the oven to the water in the cylinder. But if it were desired to cool the oven to only about 225° the water would be very effective, that is, it would be a good "refrigerant."

If, however, it was desired to cool this oven to 70° it could still be done with water in a cylinder or other closed vessel. However, the water would have to be kept at not warmer than 60°, so that it would be at least 10° cooler than the oven air.

So the boiling temperature of the water would have to be reduced to 60°. Water boils at 60° if it has only ¼ of a pound per square inch absolute pressure on it, that is, if it is held at about a 29.5 in. vacuum. In order to maintain such a low pressure, the outlet of the cylinder containing the water could be connected to a pump that would remove the vapor just as fast as it could be boiled off at 60°, and thus hold a 29.5 in. vacuum.

This would require a special type of vacuum pump; one that could pump this low a vacuum.

WATER ACTUALLY USED AS A REFRIGERANT

As a matter of fact, water is used as the refrigerant in some air conditioning equipment. The water is cooled to about 40° or 45° by its own boiling at a very low vacuum (about 29.6 in.), this vacuum being maintained by a "centrifugal" type vacuum pump, also called a "compressor."

REFRIGERANTS FOR LOW TEMPERATURES

Water is not used as the refrigerant below air conditioning temperatures, for the pump would have to maintain an extremely low vacuum, which would require extreme accuracy in the construction of the pump and at prohibitive expense. Therefore, some other liquid is used that boils at a much lower temperature at pressure around atmospheric pressure.

Commonly used refrigerants boil at atmospheric pressure at around 0°, more or less, depending on the temperature to be maintained. Sulphur dioxide boils at 14°, methyl chloride at -11°, "Freon-12" at -21.7°, ammonia at -28°, "Freon-22" at -41.4°, propane at -48°.

Since all of these temperatures are much below ordinary room temperatures or even normal outdoor temperatures, all of these "refrigerants" normally exist as gases, and are only held as liquids by keeping them under pressure, so that their boiling points are up to the temperatures of the rooms or other spaces in which they are stored.

ADDITIONAL HEAT TO BOILING LIQUID MEANS HIGHER TEMPERATURES AND PRESSURES

With the pump running at a constant speed the vapor will be carried away at a constant rate, the vapor pressure will remain constant, and the boiling temperature will remain constant, provided that the amount of heat passing from the surrounding air into the liquid refrigerant is also constant. If this heat increases, more molecules are released, more vapor is produced, the pressure above the liquid rises, and so does the temperature at which the liquid is boiling.

Conversely, if less heat gets to the vessel containing the boiling refrigerant (we call it an evaporator, for in it the liquid vaporizes) the fewer will be the number of molecules released, the lower will be the pressure of the vapor and as a consequence, the lower will be the temperature at which the liquid is boiling.

EFFECT OF INCREASING THE SIZE OF THE EVAPORATOR

If the evaporator were made larger, more surface would be exposed to the warm air surrounding it, and consequently more heat would flow into the refrigerant and the evaporator temperature would rise.

EFFECT OF RAISING THE TEMPERATURE DIFFERENCE

Or if the air surrounding the evaporator should be warmed to a higher temperature, the difference in temperature between it and the evaporator will be greater and more heat will be forced into the evaporator, and the evaporator temperature will rise. Also the pressure in the evaporator will rise, for heat always flows "down-hill," that is, from the higher temperature to the lower temperature.

If the difference between the two

(Concluded on next page)

How Temperature and Pressure Together Affect Condensation of Refrigerants

(Concluded from preceding page)

temperatures is increased the rate of heat flow is increased. If the temperature difference is decreased the rate of heat flow decreases.

As a matter of fact, the rate of heat flow varies as the temperature difference. Double the temperature difference, double the rate of heat flow. Heat flows at twice the rate from 80° to 60° (20° temperature difference) as it does from 80° to 70° (10° temperature difference) or one half the rate from 80° to 40° (40° temperature difference).

EFFECT OF PRESSURE AND TEMPERATURE ON CONDENSATION

So far we have been chiefly considering the process of boiling of the liquid refrigerant during which it takes on heat (called the "latent heat of boiling or the "latent heat of vaporization") and changes from a liquid to a vapor.

If, instead of adding heat to a liquid to make it boil we take heat away from a vapor, we first cool it down to its boiling temperature and then if we continue to remove heat the molecules in the vapor lose some of their energy and their velocity, and natural attraction between them pulls them back together and the vapor becomes a liquid.

This is called condensation, and it occurs at the same temperature and pressure by removing heat that boiling occurs at by adding heat.

SAVING THE REFRIGERANT VAPOR FOR RE-USE

The vapor drawn off from the liquid boiling at about 0° can be used over again by condensing it into a liquid and putting it back into the evaporator. It can be condensed by immediately removing heat from it (at its temperature of 0°) and it, therefore, condenses. In below zero weather the vapor could be piped through a coil outside the building, condensed, and then brought back as a liquid to the evaporator.

At most times we wish to condense the vapor in rooms at air temperatures from 50° to 100°, or by water at about these temperatures. To condense at these temperatures the pressure of the vapor must be raised. If the refrigerant is "Freon-12" it comes from the 0° evaporator at about 9 pounds per square inch above atmospheric pressure.

To condense it in a 70° room the pressure must be raised to about 100 pounds per square inch which is the condensing pressure corresponding to 90°. The vapor must be about 90° so that there is enough temperature difference (20°) to cause the heat to flow from the 90° vapor to the 70° air.

Thus we want to compress the vapor from 9 to 100 pounds per square inch above atmospheric pressure.

PUMP MUST ALSO COMPRESS THE VAPOR

So the pump which removes the vapor from the evaporator also serves to compress it, so that it will condense at room temperature and it is, in fact, usually called a "compressor."

HEAT OF COMPRESSION

Actually, when the vapor is compressed it gets much hotter than the 90°, for to compress it work is done on it and this work energy is turned into heat energy that raises the vapor temperature. This extra heat is called the heat of compression and must be removed from the vapor as well as the heat of condensation, (same as the heat of vaporization), in order for the vapor to condense into a liquid again.

REMOVAL OF HEAT OF COMPRESSION AND HEAT OF CONDENSATION

The hot vapor (usually called a hot gas under these conditions) is discharged from the compressor, at 100 pounds per square inch above atmospheric pressure, into a series of tubes or other device having a relatively large area of surface exposed to the 70° air, so that the heat can flow rapidly from the hot gas to the air. At first the hot gas cools to 90°, thus losing the "heat of compression," which is sensible heat. This brings it down to the temperature of condensation. Further loss of heat (latent heat of condensation) causes the vapor to condense, that is, to change back into a liquid—at the same pressure that it was when it was discharged from the compressor. Thus it continues to condense into a liquid, that is fed back into the evaporator, reboiled into a vapor, and again goes through the cycle, over and over again.

McLaughlin Plans New Expansion Move

MANKATO, Minn.—To provide a display and sales room for its line of freezers and coolers, in addition to commercial refrigeration line, J. C. McLaughlin is planning a new building here.

This is the third expansion move made since the firm began production of freezers. Originally work was carried on in a "back alley" shop in the rear of the McLaughlin residence, and then a 24 ft. by 30 ft. shop was added. Alex Schumann, also connected with the firm, recently completed a 24 ft. by 30 ft. shop.

The standard frozen food cabinet which the firm makes is a 9-cu. ft. unit.

McGrew Returns To Lincoln, Neb., Firm

LINCOLN, Neb.—C. J. McGrew, vice president and secretary of the McGrew Machine Co. here, has returned to the firm after spending 37 months in the material division of the office of assistant secretary of the navy.

Prior to entering service, Mr. McGrew was known to the frozen food locker industry through the McGrew line of Sanilok food locker equipment.

New R.S.E.S. Chapter in Miami Gets Its Charter

Civic leaders joined in the ceremonies marking the formal presentation of a charter to the newly formed Greater Miami Section of the Refrigeration Service Engineers Society. Left to right are J. R. Turpin, chairman of arrangements; Mrs. Turpin; Mayor Frink of Miami Beach; H. T. McDermott, national R.S.E.S. secretary; J. D. Nall, president of the new chapter; Dan Rosenfelder, Miami's public safety director; Mrs. Rosenfelder; and Mrs Nall.

Officers of the new chapter are (left to right) Al Plagg, secretary; A. L. Bizzell, treasurer; W. T. Pike, assistant secretary; J. D. Nall, president; W. W. Kelley, sergeant-at-arms; H. T. McDermott, national secretary; R. S. Smith, first vice president; J. H. Colvin, second vice president.

Low Temperature Refrigeration

By F. R. Zumbro and Terry Mitchell, Frick Co., Waynesboro, Pa.

If we make a "thermometer" showing typical temperatures used in refrigerating work, it will be seen that the field of activity can be divided into three parts.

Temperatures between 0° F. and 40° F. have been used for so long that this may be considered the standard refrigerating range.

The greatest fields for future development are undoubtedly in the regions above 45° F. and below 0° F.

At the moment we might define the low-temperature refrigeration field as beginning with -20° F., where it first becomes worth while to use two-stage compression, and continuing through -120° F., which is as far as ordinary commercial practice now generally extends.

WHEN TO INSTALL 2-STAGE SYSTEM

If the compression ratio is around 8 to 1 or more, it usually pays to install a two-stage system depending, of course, upon the size of the installation and the type of refrigerant. Where the temperatures go down still lower, three stages are used with float and electric control valves and liquid and gas coolers. The liquid is also cooled in stages.

One of the largest 3-stage systems in the country is installed at the All-Weather Laboratory shown in Fig. 3. The job comprises a large high-temperature room, a huge stratosphere tunnel nearly 50 ft. long, and the small test box at right.

The fan in the tunnel circulates 100,000 cu. ft. of air per minute over the finned coils, which are kept flooded by liquid ammonia with a pump. A large suction accumulator, placed beneath the coils, serves as a reservoir for the cold liquid and prevents slugging over into the suction line.

Main suction pipe to the four-cylinder booster compressors is of 12 inches diameter. The first-stage boosters have cylinders 15 by 10 inches, and are driven at 360 r.p.m. by 75-hp. motors. Each four-cylinder machine is rated at 19 tons refrigeration when carrying a suction pressure of 23 inches vacuum and discharging at 10 inches vacuum.

The two second-stage machines are 11½ by 8 compressors, each with two cylinders, driven at 400 r.p.m. by 60-hp. motors. These machines discharge at 40 lb. gauge pressure into a pair of 7 by 7's which form the third or high stage. They are driven at 400 r.p.m. by 40-hp. motors, making the total connected horsepower 350. Two small shell condensers keep the final head pressure at 170 gauge.

MACHINE CAPACITY

The first-stage machines handle 13.1 lb. of ammonia per minute, equivalent to 1,173 cu. ft. The second-stage machines handle 16.2 lb. per minute, or 465 cu. ft. of gas actually pumped. The third stage has 22.54 lb. in circulation per minute, or 182 cu. ft. The steady increase in poundage results from the cooling of the gas and liquid between the stages.

Being a test chamber, the tunnel is arranged to hold automatically any temperature between 100° F. and -70° F. Direct-expansion cooling jackets are used on the machines of both the first and second stages.

The ammonia liquid pump handles 10 g.p.m., which at -75° F. corresponds to about 60 lb. per minute, or nearly 5 to 1 when measured by the load requirements. A separate 3-stage set of compressors cools the small low-temperature test box. A 4 by 4 machine is used for pump-out service.

Ammonia was selected for this wartime job for several reasons: plenty of ammonia was readily obtainable; it was inexpensive, and losses from the charge would likely be small. As the low side operates at a vacuum there is very little danger to personnel from leakage. Manufacturers and operators are so familiar with ammonia equipment that special problems were minimized. It works well in stages, does not carry any appreciable amount of oil over, and parallel operation of machines is easy. Friction losses in the pipe lines are low.

"Freon-12" and "Freon-22" have lately come into use for low-temperature work, and operate at a higher suction pressure on the first-stage machine than ammonia. In Flow Diagram No. 2 the coldest temperature produced is -100° F., giving a suction pressure in the first-stage machine of over 2⅓ lb. absolute. This represents a rather low vacuum: ammonia would hardly be useable at this low temperature. Note that an oil return trap was used in the discharge from each compressor.

On all except the smallest jobs, the jacket of the first-stage compressor should be cooled with direct-expansion refrigerant.

The liquid refrigerant in this case is chilled from a temperature of say 100° F. in the cooler shown at the center. "Freon-22" is a comparatively new refrigerant, but one that works well in very low-temperature applications.

At -107° F., in a 2-stage system, it shows a volumetric efficiency of 48.6% at a compression ratio in the first stage of 6.3. (Superheat, about 70°.)

Pennsylvania State College uses a low-temperature box for quick-freezing tests with meats and other foods. The box measures 6½ by 4 by 7 feet, outside, and is insulated with 8 inches of corkboard. A bank of double nested coils occupies nearly half of the interior space at the left; the doors open to a space filled with staggered shelves for blast-air freezing, a squirrel cage fan and motor; a small brine tank and pump are used for immersion freezing tests.

This box has been cooled to temperatures as low as -50° F. and the brine may go down to -35. The brine pump, of 5 gal. capacity, cir-

(Continued on next page)

Fig. 1. Applications at Various Temperatures

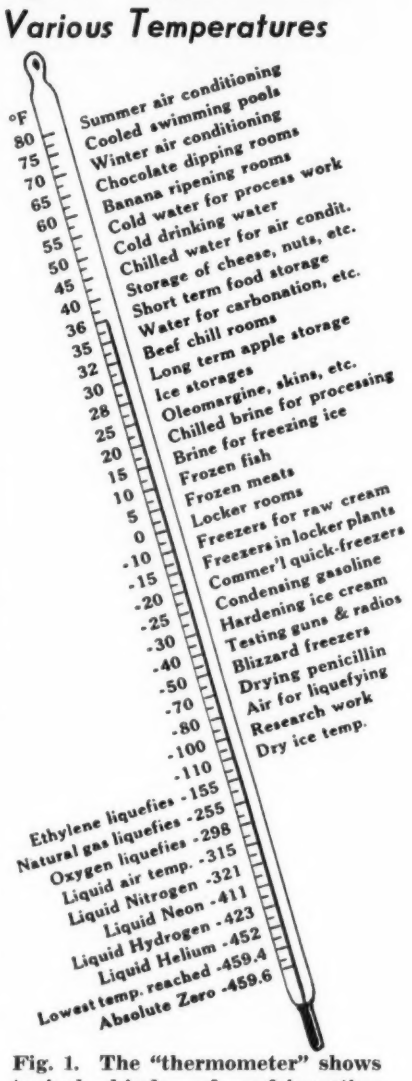


Fig. 1. The "thermometer" shows typical kinds of refrigerating work performed at various temperature levels.

Fig. 2. Penicillin Needs Very Low Temperatures

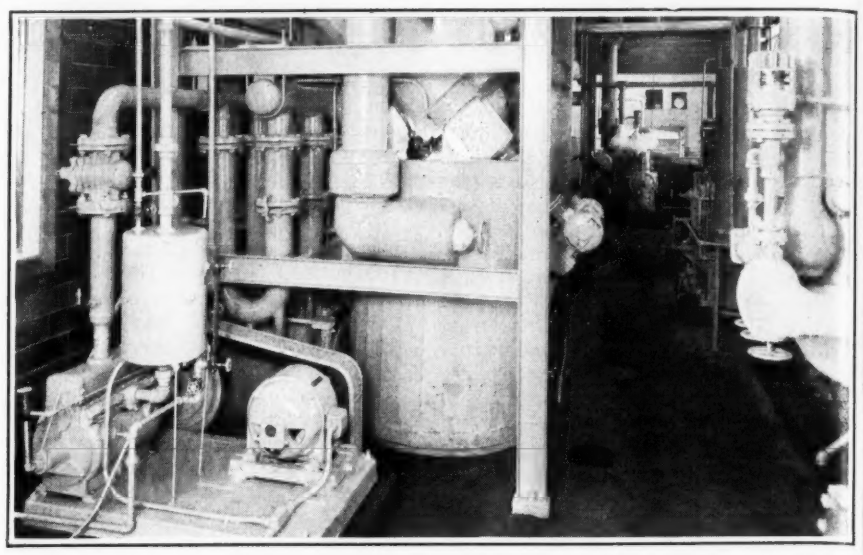


Fig. 2. Temperature of -40° F. to -80° F. are used in drying penicillin under an extremely high vacuum; frozen moisture is collected in the drum shown in the center.

Fig. 3. Layout of Army Weather Laboratory

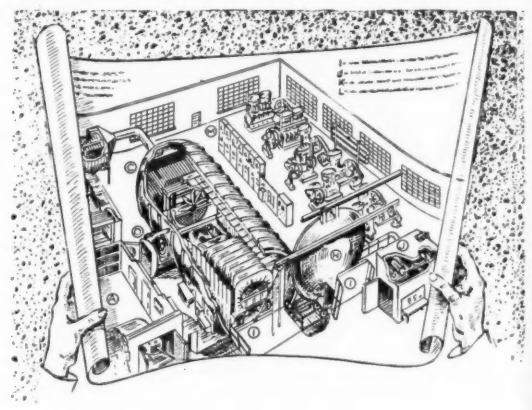
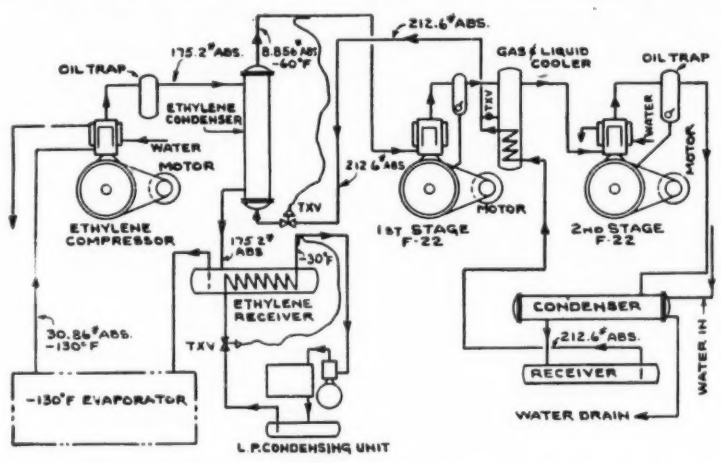


Fig. 3. This All-Weather Laboratory built for the United States Army has 10 refrigerating machines and produces temperatures as low as -70° F.

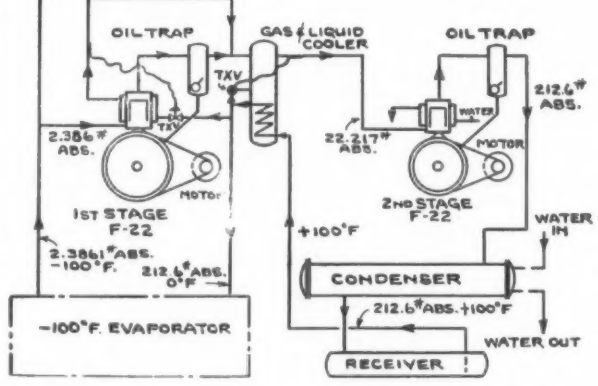
Flow Diagram No. 1. Typical Two-Stage System



FLOW DIAGRAM - LOW TEMP. CASCADE SYSTEM - ETHYLENE & FREON-22

Flow Diagram No. 1. Arrangement of a typical two-stage system, showing temperatures and pressures encountered at various points.

Flow Diagram No. 2. Cascade System Using "F-22"



FLOW DIAGRAM - 2-STAGE FREON-22 SYSTEM

Flow Diagram No. 2. A cascade system using "Freon-22" in two stages for condensing ethylene, which is kept within safe pressures when the main plant is shut down by operating small machine.

Comparing Low Temperature Systems

(Continued from preceding page)

culates the brine over the coils in the tank, under thermostatic control.

A two-stage "Freon-12" system carries the load. A heat exchanger precools the liquid before it reaches the electric control and thermostatic expansion valves which feed the coils. The main cooling coils operate at a suction pressure of 5.6 lb. absolute; intermediate pressure is 20 lb. and the condensing pressure 139. A bypass makes it possible to cut out the first-stage machine if desired.

HOW MANY STAGES?

Table 1 gives a comparison of the number of cubic feet of ammonia, "Freon-22," and "Freon-12," which have to be handled in compressors to produce one ton of refrigeration at the temperatures shown at the left. Note that three-stage compression is recommended with ammonia beyond -50° F. and with other refrigerants beyond -80° F. "Freon-22" has the smallest volume of any of the refrigerants shown, as soon as we pass about -15° F.

In Table 2 it is assumed that the saturated temperature in the evaporator is to be -40° F. throughout. A complete study of this kind is very helpful in selecting the best refrigerant for any job. Allowance has been made for 10° of superheat in each of the two stages. The figures speak pretty well for themselves.

Table 3 gives a good idea of how the total compression ratios compare for 1-, 2-, and 3-stage installations. It applies to "Freon-12" at a discharge temperature of 109.8° F. As the suction temperature goes down, the total compression ratio changes from about 5¼ to more than 60. With suitable staging the ratio is kept well under 7. The figures for the cu. ft. per ton are of interest also.

Table 4 compares seven different refrigerants when used to maintain a temperature of -100° F. The melting points hardly have to be considered except in the case of ammonia and of carbon dioxide. The suction pressures show why "Freon-22," Ethane, or Ethylene are most suitable for temperatures of -100 and below. The critical points are worth noting. Propane at -100 operates at 23.43 inches of vacuum—similar to "F-22."

The section view in Fig. 4 shows some details of a typical booster compressor. These machines all have a bore larger than the stroke. They are built with either two or four cylinders. The shaft is equipped with a mechanical seal, which holds either pressure or vacuum equally well. The oil pump is driven by the chain shown at the left and together with a Cuno self-cleaning filter is below the level of the oil in the crankcase.

BOOSTER MACHINES COMMON

Booster machines with four cylinders measuring 15 by 10 or 17¾ by 12 are becoming a common sight in large quick-freezing plants. A battery of such machines is now being installed at Seabrook Farms, Bridgeton, N. J., and with the 20 or 30 compressors already in use there will bring the freezing capacity of the plant to one million pounds a day, this coming season.

A cascade system has the low-temperature refrigerant condensed by another refrigerant. This was originally done with carbon dioxide and ammonia a good many years ago. In Flow Diagram No. 1 the possible use of ethylene is shown for the first step of the cascade and "Freon-22" for the second step, which is divided into two stages.

Ethylene can produce temperatures below -150 while maintaining a pound or two of positive gauge pressure, and can be condensed at -54.4° F. and 225 lb. gauge. (9.8 cu. ft. per ton.) It will give temperatures down to -176.8° F. if needed.

In this particular setup, a fourth compressor, in the form of a low-pressure condensing unit, is used for cooling the liquid ethylene in the receiver to -30° F. or thereabouts, when the rest of the system is shut down: this keeps the pressure in the ethylene piping within safe limits, as the system is pumped down before the machine is stopped.

(To Be Continued)

Jennings Refrigeration To Have New Building

LOS ANGELES — A new sales building is being erected at 2900 East Olympic Blvd., Los Angeles, for the Jennings Refrigeration Co., of 10,423 California Ave., South Gate, Calif. The new structure will be 25 x 122 ft. in area and will cost $6,000.

Fig. 4. Section View of a Booster Compressor

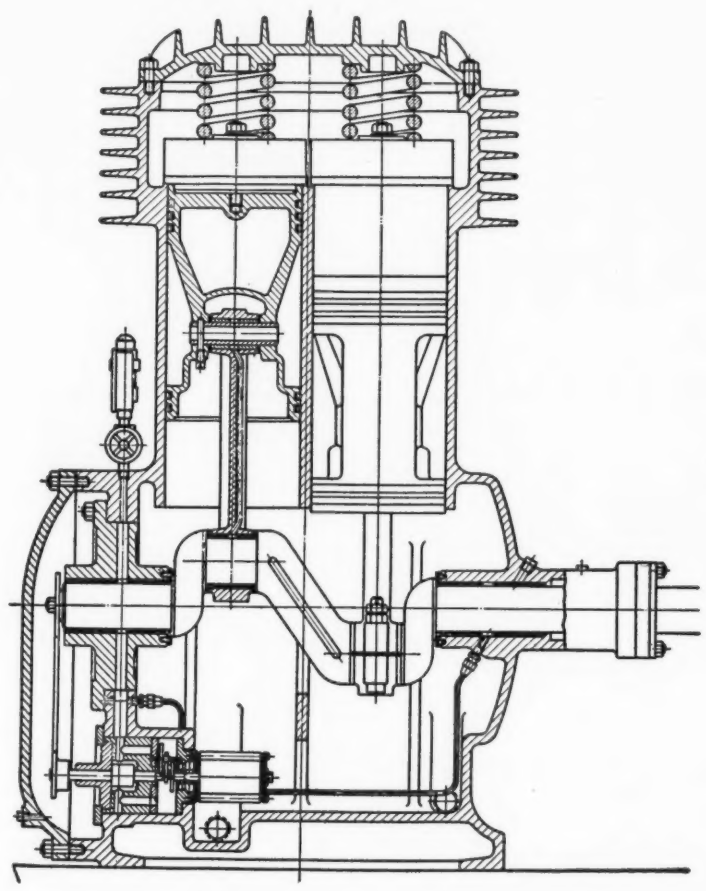


Fig. 4. Section view through a booster compressor, such as may be used in a low temperature system. All such compressors have a bore larger than the stroke.

Tables Giving Useful Data For Selecting the Right Refrigerant for 2-Temperature Refrigeration Systems

TABLE 1—Showing Approximate Volume of Various Refrigerants Which Must Be Handled Per Minute In First Stage to Produce Low Temperatures

Suct. Temp.	Ammonia Cu. Ft. /Ton	Ammonia No. of Stages	"Freon-22" Cu. Ft. /Ton	"Freon-22" No. of Stages	"Freon-12" Cu. Ft. /Ton	"Freon-12" No. of Stages
-100	.....	..	40.4	3	.....	..
- 90	.....	..	29.0	3	48.4	3
- 80	31.2	3	22.5	2	37.6	2
- 70	21.7	3	16.85	2	28.2	2
- 60	15.9	3	12.76	2	21.35	2
- 50	12.51	2	9.82	2	18.20	2
- 40	9.4	2	7.76	2	13.00	2
- 30	7.2	2	6.26	2	10.30	2
- 20	5.6	2	5.04	2	8.30	2
- 10	4.4	2	5.21	1	6.69	2
0	3.5	2	4.19	1	6.82	1

TABLE 2—Comparison of Two-Stage Refrigerating Systems All At -40 Deg. F. Saturated Evaporator Temperature

	Ammonia	"Freon-12"	"Freon-22"
Evaporator Press. Absolute	10.41 Lb.	9.32 Lb.	15.309 Lb.
Temp., Suct. to Booster	-30 deg.	-30 deg.	-30 deg.
Superheat in Suction Gas	10 deg.	10 deg.	10 deg.
Intermediate Press., Abs.	45.7 lb.	34 lb.	55.4 lb.
Intermediate Temp. Saturated	18.0 deg.	18.0 deg.	17.5 deg.
Temp., Suct. to Main Compr.	28.0 deg.	28.0 deg.	27.5 deg.
Superheat, Suct. to Main Compr.	10 deg.	10 deg.	10 deg.
Condenser Press., Abs.	200 lb.	124.5 lb.	200 lb.
Condenser Sat. Temperature	96 deg.	96 deg.	96 deg.
Gross CFM/TR, 1st Stage	15.23	20.85	11.7
BHP/TR 1st. Stage	1.409	1.375	1.310
Temp. Liq. to Exp. Valve	40 deg.	40 deg.	40 deg.
CFM/TR, 2nd Stage	3.385	6.4	3.94
BHP/TR, 2nd Stage	1.34	1.535	1.6
Vol. Eff., 1st. Stage	65%	67½%	72%
Vol. Eff., 2nd Stage	80%	73%	75%

TABLE 3—How Use of 2 or 3 Stages Keeps Compression Ratio Within Limits In a "Freon-12" System

Temp. Deg. F.	Suct. Press. Abs.	Total Comp. Ratio	No. of Stages	Interm. Press.	Ratio Per Stage	Cu. Ft. Min/Ton
0	23.87	5.22	1	.....	5.22	6.82
-10	19.20	6.48	2	48.9	2.55	6.69
-20	15.28	8.16	2	43.7	2.86	8.30
-30	12.02	10.35	2	38.7	3.22	10.30
-40	9.32	13.36	2	34.1	3.66	13.00
-50	7.125	17.45	2	29.8	4.18	18.2
-60	5.365	23.2	2	25.86	4.82	21.35
-70	3.971	25.05	2	22.30	5.61	28.2
-80	2.885	43.2	2	19.00	6.58	37.6
-90	2.054	60.6	3	10.10	3.5	48.4

Discharge 109.8 Deg. = 124.5 Lb. Gauge

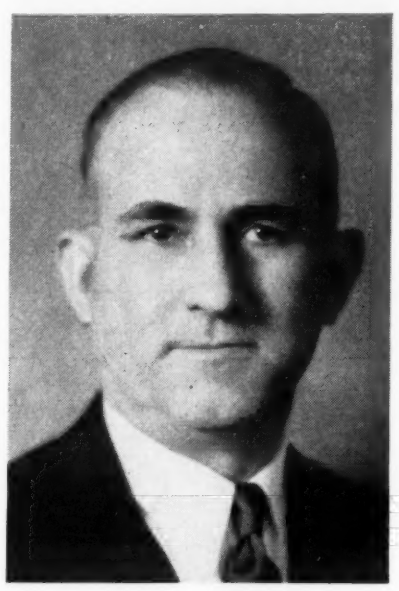
TABLE 4—Properties of Seven Low-Temperature Refrigerants

	Melting Point Deg. F.	Pressure for -100 Deg. F.	Critical Points Press. Gauge	Critical Points Temp. Deg. F.
Ammonia	-107.86	27.4 in. Vacuum	1651	271.2
"Freon-12"	-252.7	27.01 in. Vacuum	567	232.7
"Freon-22"	-256.0	25.06 in. Vacuum	701	204.8
Ethane	-278.0	16 lb. approx. gauge	718	89.8
Ethylene	-272.0	50 lb. approx. gauge	749	49.5
Propane	-309.8	23.43 in. Vacuum	632	201.1
CO_2	- 69.9	7.52 lb. gauge	1070	87.8

'Hollywood Star Time' Is Frigidaire Radio Show

DAYTON, Ohio — The premiere performance of the new Frigidaire "Hollywood Star Time" radio show over the coast-to-coast CBS network on Sunday, Jan. 6, at 2:30 p.m., EST, featured Tyrone Power, in his first public appearance since his discharge as a Marine Combat Pilot, and Jeanne Crain, like Mr. Power an outstanding 20th Century-Fox star, in the radio adaptation of "Seventh Heaven."

Keynoting the 1946 advertising campaign of the Frigidaire Division, the "Hollywood Star Time" radio show will be broadcasted each Sunday and will present the radio adaptations of outstanding motion pictures. Stars of similar magnitude as those appearing in the premiere performance will be featured in subsequent broadcasts, the company announced. Frigidaire "Hollywood Star Time" will pursue the policy, wherever possible, of featuring the same cinema stars who appeared in the original motion pictures.



C. W. HUDZIETZ
Mr. Hudzietz, veteran refrigeration sales representative, has been placed in charge of an eastern outlet for products manufactured by Henry Valve Co., with offices in Grand Central Terminal, New York City.

G-E Production--

(Concluded from Page 1, Column 3)

1941 have outstripped technological advances in production, said Mr. Wilson, who added that he hesitated to advocate removal of price controls, especially in the field of housing.

Revealing G-E's current production rates, H. L. Andrews, who heads the company's appliance operations, indicated that the 1941 rate of production may not be reached until late in 1946.

Of a total of 27 consumers goods items in the G-E line, 18 are in production now, according to Mr. Andrews. Four appliances are being produced at a rate of 100% of 1941, six at 50% to 100%, and eight at 15% to 50%.

Of refrigerator production, 94% of those being manufactured are being shipped, Mr. Andrews said. Distributors in this country are receiving 97½% of the shipments, while the remaining 2½% is going for exports, he declared.

G-E is shipping 97% of its washer output, with distributors getting 97% and export 3%, according to Mr. Andrews, who also said that 97% of present flatiron production is being shipped, 81% going to domestic distributors, 14% to the Army and Navy, and 5% to export.

Radio production at G-E is in a worse situation than any other line, according to Dr. W. R. G. Baker, in charge of electronics operations. Declaring that difficulties in getting parts is a major reason, Dr. Baker said that production is running at only 20% of what had been expected. He reported that there was no stock on hand with the exception of unfinished inventories on the production line.

Answering the union charge that G-E is moving to smaller communities to escape unions and obtain cheaper labor, President Wilson declared: "That charge is absolutely baseless.

"The facts are that by the end of 1946 or early 1947 we expect to be employing 100% more people than before the war and most of that increase will be in cities where our plants are now located.

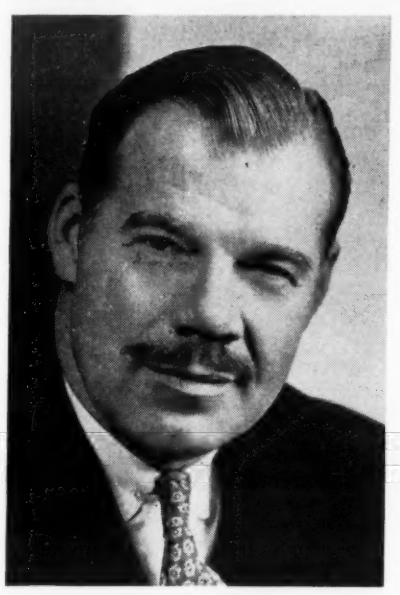
"Moreover labor is entitled to the right to bargain collectively and what's more we believe in it," stated Mr. Wilson.

Plans were cited by Mr. Wilson which will increase employment and production at plants in Schenectady, Pittsfield, West Lynn, Fitchburg, Ft. Wayne, Decatur, Syracuse, and Bridgeport.

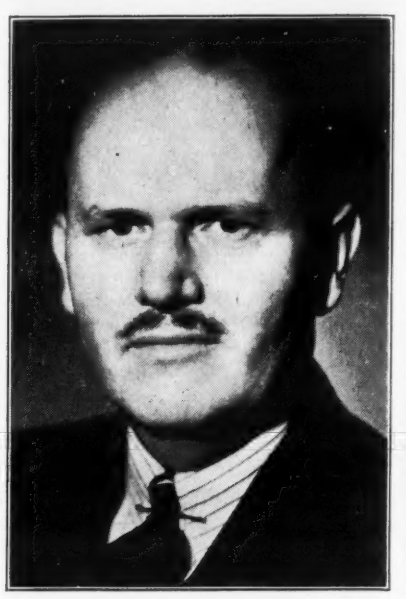
Prices Set For One Easy Washer Model

SYRACUSE, N. Y.—OPA has recently approved ceiling prices for sales by dealers of Model 8SS-46 spinner type washing machine manufactured by Easy Washing Machine Corp. Order 22, MPR 86, fixed the following maximum retail prices for the washer: Zone 1, $129.95; Zone 2, $134.95; Zone 3, $134.95; and Zone 4, $139.95.

Figure In Norge Merchandising Staff Shifts



ELLIS REDDEN
Becomes manager of sales promotion for Norge.



C. H. MacMAHON
New Norge director of advertising and public relations.

E. R. BRIDGE
Has been appointed Norge merchandise manager.

E. J. KANKER
Will direct market research for Norge.

'Honest Distribution' Group Meeting Is Postponed

BUFFALO — The meeting of the newly formed "Honest Distribution" committee scheduled for Chicago for Jan. 4, has been postponed until a later date, reports Paul Wolk, president of Bickford Bros. of Rochester and Buffalo, who is temporary president of the group.

The organization of this committee was announced in New York a few weeks ago with its main purpose to combat so-called "back door" selling and other evil forms of distribution.

Charter members of the committee include: W. Sydney Fisher, Merchandise Manager, Homefurnishings Division of McCurdy's of Rochester, N. Y.; J. E. Floberg, Sibley, Lindsay & Curr Co. of Rochester, N. Y.; E. F. Murphy, E. W. Edwards & Son of Rochester, N. Y.; R. M. Oliver, vice president, Proctor Electric Co. of Philadelphia; Cy Shobe, Shobe, Inc., of Memphis, Tenn.; and Thomas Quigley, managing director of the Philadelphia Trade Relations Council.

Needler, Colfax, Sibley Shifted by Farnsworth

FORT WAYNE, Ind.—E. S. Needler has been appointed manager of the special products sales division, R. L. Colfax was named general purchasing agent, A. E. Sibley became Capehart divisional manager, and Frank Harris assumed the post of export manager after a recent rearranging of personnel at the Farnsworth Television & Radio Corp. here.

Mr. Needler will handle contract sales, automatic record changers, and other special contracts. He was succeeded in his post of general purchasing agent at Marion, Ind., by Mr. Colfax.

Sales and distribution for the East Central territory will be guided by Mr. Sibley as divisional manager of Capehart, and Mr. Harris will handle export sales for both Capehart and Farnsworth lines here.

Kelvinator--

(Concluded from Page 1, Column 3)

quarter of 1945."

Other appliances, such as ranges, ice cream cabinets, and beverage coolers, were hit even more seriously, Mr. Mason stated, and in one case less than 4% of the schedule was met. He said automobile production was held to less than a quarter of anticipated output.

"Despite parts shortages resulting largely from labor difficulties in plants of outside suppliers," Mr. Mason declared, "every effort was made to get our products into the hands of consumers."

About 25% of Kelvinator refrigerators were shipped to the field with parts, such as evaporator doors or ice trays, lacking, and hundreds of Nash automobiles were shipped without bumpers, he said.

"We decided to build everything we could with the supplies available to us," Mr. Mason explained. "Where the missing parts did not affect the mechanical function of the automobile or refrigerator, we took the view that it was better to add the parts later than it was to close our plants completely."

Despite the present production handicaps and general uncertainty, Mr. Mason thinks 1946 holds "enormous possibilities for productivity and prosperity" for both the appliance and automotive industries.

"While it is naturally impossible in the light of present conditions to make accurate estimates of automobile and refrigerator production during the coming year, we know that the potentialities are great and that the new year offers an unexcelled opportunity for production, sales, jobs, and prosperity," he said. "With such possibilities facing us we look forward optimistically, in spite of the fact that the nation's overall postwar program to date has been gravely retarded by materials shortages and labor problems in key industries."

The Nash-Kelvinator president said that by mid-1946 production of Nash cars would be at the rate of 200,000 a year, according to current plans, with an over-all industry output of about 3,500,000 as compared with 5,000,000 previously contemplated. He disclosed that the Nash Motors division was producing 360 cars a day when production was halted.

Strike--

(Concluded from Page 1, Column 5)

expected the government to live up to its policy of encouraging wage increases without boosting prices.

General Electric did not attend the first meeting called by Federal Conciliator Warren, but later, through its president, Charles E. Wilson, offered to meet with government officials and union leaders, and also asked the union to reconsider the offer of a 10% raise.

Commenting on the union's prompt refusal of the original wage boost offer, Mr. Wilson declared that too much was at stake for workers, stockholders, and the public for "quick trigger action and economic wishful thinking."

"The company has every desire to continue discussions with the union leaders in the hope of working out the vital problems on a sound economic basis through direct negotiations," said Mr. Wilson. "We believe in collective bargaining, and that process of settling problems between the union and the company has not broken down."

Mr. Wilson also pointed out that G-E employes are now receiving average rates of pay which are more than 30% higher than in January, 1941.

He further stated that if the union accepts this 10% wage increase, the workers would actually be in a higher status economicaliy than before the war, in spite of the present higher cost of living.

Charges that the company was trying to "speed-up" its employes were held strictly invalid by Mr. Wilson, who stated:

"We are not talking about a speed-up crackdown on labor. The records show that there definitely is a lagging in production. The man-hour production now is substantially lower than it was before the war in the same General Electric factories where the same products are being made under the same conditions.

"It is elemental that with new and better machines in many places, an increase in production should be possible with the same effort. We simply are expecting a productive effort comparable to that displayed by our employes prewar."

Wisconsin Code--

(Concluded from Page 1, Column 2)

eration effect), and for self-contained installations up to and including 3 hp.

One thing that is disturbing members of the refrigeration industry is their inability to get any kind of a hearing before the Wisconsin industrial commission. Representatives of some industry associations who sought to attend the hearings last month were turned down, and their request for a copy of the proposed draft of the code was refused.

It is understood, however, that the Commission did call in one man who is actively engaged in refrigeration contracting work.

Those in charge of preparing the code are apparently now in the process of redrafting it, after which it will again be presented before the Industrial Commission.

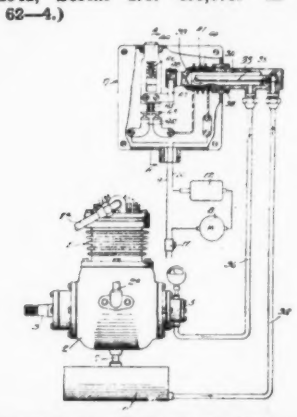
Presumably the next step will be public hearings. However, the Industrial Commission seemingly has the authority, under the state's laws, to compile and promulgate such a safety code by itself without any further legal action or approval.

Voyta Wrabetz is chairman of the Wisconsin Industrial Commission, and M. A. Edgar is director of the safety division which is directly concerned with the refrigeration code.

PATENTS

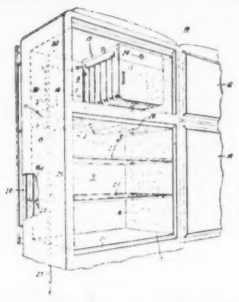
Weeks of Dec. 11 & 18

2,390,650. CONTROL FOR REFRIGERATING SYSTEMS. Arthur C. Hollatz and Ray G. Thomas, Bloomington, Ill, assignors, by mesne assignments, to Eureka Vacuum Cleaner Co., Detroit, Mich., a corporation of Michigan. Application June 27, 1941, Serial No. 400,070. 12 claims. (Cl. 62—4.)



1. In a refrigerator having the usual compressor and motor for driving the same and means to cause automatic intermittent operation of said motor in accordance with refrigerating requirements, said compressor having an oil circulating system, a normally closed switch in the power controlling circuit of said motor, resilient means tending to open said switch, fusible metal means in heat conductive relationship to an oil circulation conduit of said circulating system to make said resilient means ineffective to open said switch, and a heater for fusing said metal to permit said switch to open, said heater being normally of insufficient capacity to fuse said metal when the oil circulation is maintained at a predetermined normal speed and sufficient to fuse said metal and release said switch when the oil circulation drops below said normal.

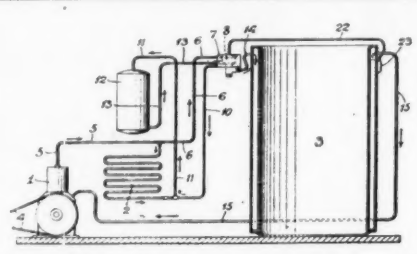
2,390,808. REFRIGERATOR. Delbert F. Newman, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application July 21, 1943, Serial No. 495,639. 6 Claims. (Cl. 62—116.)



1. A refrigerator comprising a cabinet having thermally insulated walls, a thermally insulated partition for dividing the interior of said cabinet to provide two compartments within said cabinet, refrigerating means arranged in said cabinet for cooling said compartments, said means being arranged to maintain one of said compartments at a lower temperature than the other of said compartments, said means tending to cool the surface of said partition within said other compartment to a temperature below the normal temperature of the air in said other compartment, and means disposed in heat exchange relation with said partition on its side adjacent said other compartment for maintaining the temperature of the surface of said partition within said other compartment at least as high as the temperature of the air within said other compartment whereby the transfer of heat from the air in said other compartment through said partition is minimized.

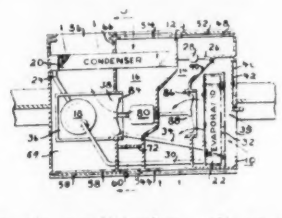
2,391,030. REFRIGERATING APPARATUS. Willard L. Morrison, Lake Forest, Ill. Application Dec. 15, 1941, Serial No. 423,023. 6 Claims. (Cl. 62—127.)

1. A refrigerating apparatus comprising an evaporator, a source of refrigerant supply connected with said evaporator, an expansion valve in said connection, a



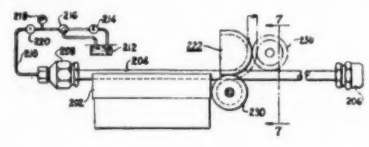
controlling means for controlling said expansion valve responsive to variations in temperature of the evaporator and means associated with the expansion valve for preventing the temperature thereof from falling below a predetermined point comprising an electric heating coil surrounding the exterior of the expansion valve and connected in an electric circuit.

2,391,151. REFRIGERATING APPARATUS. J. Lowell Gibson, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 14, 1944, Serial No. 522,211. 8 Claims. (Cl. 62—129.)



1. An air conditioning unit comprising a casing adapted to be positioned in a window of a space to be conditioned, the front wall and at least a portion of the sides, bottom, and top of said casing extending into the space to be conditioned, a partition dividing said casing into two chambers, each of the chambers having a pair of openings leading to the outside atmosphere and another pair of openings leading to the space to be conditioned, fan means for flowing air through each of said chambers, a refrigerating system including an evaporator in one of said chambers and a condenser in another of said chambers, and means for rendering certain of said openings ineffective at times including means for blocking the flow of air through one portion of said condenser when condenser air is discharged into the conditioned space.

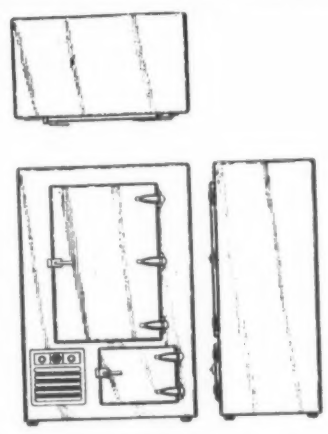
2,391,252. REFRIGERATING APPARATUS. Chester F. Louthan, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application June 12, 1944, Serial No. 539,840. 1 Claim. (Cl. 219—3.)



The method of forming tubing which comprises, applying an internal pressure within the tubing, applying a bending force to the tubing to bend the tubing through an angle and while under such force and internal pressure sending an electric current through that portion of the tubing at which the bending is desired to heat and facilitate the bending of the tubing at that portion.

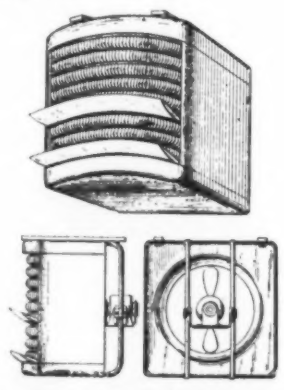
DESIGNS

143,140. DESIGN FOR A FROZEN FOOD CABINET. William S. Connell, Norwood Park Township, Cook County, Ill., assignor to The Bastian-Blessing Co., Chicago, Ill., a corporation of Illinois. Application June 3, 1944, Serial No. 113,845. Term of patent 7 years. (Cl. D67—3.)



The ornamental design for a frozen food cabinet, as shown.

143,161. DESIGN FOR A REFRIGERATING UNIT. Frederic G. Peck, Upper Darby, Pa., assignor to Merchant & Evans Co., Philadelphia, Pa., a corporation of Pennsylvania. Application May 31, 1945, Serial No. 119,828. Term of patent 7 years. (Cl. D62—4.)



The ornamental design for a refrigerating unit, as shown.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $2.50 per insertion. Limit 50 words.
RATES for all other classifications $5.00 per insertion. Limit 50 words.

POSITIONS AVAILABLE

SAN DIEGO, California. Wright Refrigeration Service requires first class service men at $1.50 per hour with time and half over 40 hours per week. Steady work, lots of overtime, and the best climate in America. WRIGHT REFRIGERATION SERVICE, 1337 India St., San Diego, Calif.

FACTORY REPRESENTATIVES to contact jobbers and distributors by producers of the ZER-O-LINE of Frozen Food Packaging. Many territories open excluding South, Southwestern, and Pacific Coast states. Write advising areas now covered. YORKVILLE PAPER CO., INC., 431 East 77th St., New York 21, N. Y.

APPLICATION ENGINEER: familiar with technical and practical applications of heat transfer equipment wanted by refrigeration and air conditioning manufacturer located in Michigan. Please advise background and qualifications Box 1793, Air Conditioning & Refrigeration News.

COMMERCIAL application and service engineers. Large refrigeration firm with growing export business has openings in several territories for qualified refrigeration application and service engineers Knowledge of foreign languages helpful Write giving full details experience and references. Box 1797, Air Conditioning & Refrigeration News.

ENGINEER, M. E., at least five years experience in design of quantity production, fractional horsepower, self-contained air conditioners or small commercial refrigeration equipment. New expanding engineering department in large company in East. Box 1870, Air Conditioning & Refrigeration News.

SALES & APPLICATION Engineer, manufacturer of 10-50 ton compressor units. Man who has technical knowledge of all fields air conditioning and refrigeration plus sales experience. Eventually head department. Please write fully and state salary with commission desired. SCHNACKE, INC., 1016 E. Columbia St., Evansville, Ind.

POSITIONS WANTED

EXPERT SERVICE MAN. Domestic, commercial, also F.H.P. motors. Wants job or business opportunity small town or rural area. Prefer South or Southwest. Three bedroom home or farm, 33 years, three children, U.E.I. graduate. Factory-Dealer-Independent experience 10 years. Fully equipped. Box 1865, Air Conditioning & Refrigeration News.

APPLICATION & SALES Engineer. Discharged Navy Officer, 12 years commercial refrigeration, design, manufacturing, layout, field application, sales and sales management, heavy on sub-zero, food freezing, liquid cooling. Spent 10 months in France, have excellent contacts there. Age 34, have initiative, intelligence, and sense of responsibility. Box 1895, Air Conditioning & Refrigeration News.

SALES ENGINEER, under 40, with 10 years experience selling jobbers and manufacturers in midwest area desires executive connection or to represent stable and progressive companies on agent basis. Box 1893, Air Conditioning & Refrigeration News.

CONNECTION WANTED with manufacturer or distributor of commercial or industrial refrigerating or air conditioning equipment as field representative for sales, service, or engineering. Southeast territory desired. Not working now, but have 12 years broad experience. Box 1892, Air Conditioning & Refrigeration News.

SALES EXECUTIVE with broad and successful experience in the executive management and direction of both retail and wholesale organizations in the domestic and commercial electrical appliance business would like connection as district or factory branch manager, preferably in the middle or southwest. Prefer personal interview. Box 1888, Air Conditioning & Refrigeration News.

FRANCHISES WANTED

ROOM COOLER Distribution wanted by large distributor of refrigeration and air conditioning products. Chicago area. Well designed, efficient, and attractive line of console and portable type room coolers desired. Will produce volume. Box 1894, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

FOR SALE. Remanufactured air and water-cooled condensing units ¼ hp. up to 1½ hp. Frosted food and ice cream cabinets. EDISON COOLING CORP., 310 East 149th St., New York 51, N. Y.

SEALED CROSLEY units repaired, exchanged. Compressor heads only $17.95, burnouts $9.25 extra. Ceramics 95 cents each. Set of three $2.75. Our book at $5.45 illustrates our successful method of opening, repairing, and closing sealed Crosley units with ordinary shop equipment. Limited copies. SEALED UNIT PARTS CO., 3097 Third Ave., New York.

"CENTRAZ" VAPOR-SEAL. A waterproof adhesive that adheres to metal, wood, cement, plaster, etc. For lining frozen food and ice cream cabinets, milk and water coolers, walk-in boxes and all refrigeration applications requiring vapor control. Wall applications can be painted. CHRISTY CO., 1530 Olive St., St. Louis 3, Mo.

EQUIPMENT WANTED

FREEZER MANUFACTURER to manufacture for us five freezer cabinet models 8, 10, 15, 20, and 30 cubic feet. Write for our specifications and blue prints. Box 1889, Air Conditioning & Refrigeration News.

WE BUY surplus stocks of new air conditioning high-sides or self-contained air conditioners. We also buy new commercial display cases, reach-in refrigerators, show-cases, new motors, and condensing units, ¼ hp. to 75 hp. PILGRIM REFRIGERATION CO., 48-20 43rd Ave., Long Island City 4, N. Y.

MEETINGS FOR THE INDUSTRY

Jan. 7-19: Winter market sessions at the American Furniture Mart and the Merchandise Mart, Chicago. Forums on available merchandise, new products, postwar distribution plans.

Jan. 28-30, Mon-Wed: 52nd annual meeting of ASHVE. The Commodore, New York City.

Feb. 21-22, Thurs-Fri: National Association of Refrigerated Warehouses. The Edgewater Beach, Chicago.

March 4-7, Mon-Thurs: Spring REMA meeting, including joint sessions with REWA. The Stevens, Chicago.

April 21-25, Sun-Thurs: 37th annual convention of NEWA. The Stevens, Chicago.

April 27-May 19: Products of Tomorrow Exposition. The Chicago Coliseum (on the south fringe of the Loop), Chicago.

New Cold Room Permits Goodrich to Test Rubber & Plastics at -90° Conditions

AKRON, Ohio—A new cold room in which rubber and synthetic rubber compounds and products of many types, plastics and other materials can be tested at temperatures down to -90° F. has been installed by The B. F. Goodrich Co. at its Akron plants. Temperatures in the cold room can be varied from 50° to -90° F.

Thirty feet long, 15 feet wide, the cold room has five working units, each 6 feet square, cooled by a three stage compressor unit and a single stage compressor using "Freon-12" and "Freon-22" as refrigerants. Each unit operates separately, with electrically controlled temperatures charted for a 24-hour study at different levels.

The new unit is large enough to permit tests of equipment under temperatures found in the colder parts of the United States and Canada, as well as those encountered in high altitude flying.

RANGE OF UNITS

Capable of taking a load of 250 pounds of rubber, synthetic rubber, or plastics, 500 pounds of steel or 100 pounds of oil, each unit is equipped with a door having a non-locking catch, and an alarm operated from within the unit as further protection against locking in the operator. All operators wear electrically heated clothing. Four of the units have temperature ranges from 50° F. to -65° F., while the fifth has a range from 50 to -90° F.

The cooling unit has 16 inches of insulation on the sides and top and 19 inches next to the floor. The large entry room is provided with a Niagara No-Frost unit to absorb all moisture, making it unnecessary to defrost the cold room. Moisture is distilled off outside.

Vital necessity for careful testing of many rubber, plastic, and metal products under extreme cold was emphasized during the war, when ground temperatures of -65° F. were encountered in Siberia, Alaska, and other places, and lower ranges met in high altitude flying, even in the tropics.

Many rubber parts of airplanes had to meet the exacting requirements of these low temperatures where failure would have meant loss of life and equipment. These include carburetor diaphragms, accumulators, air valves, De-Icers, fuel cells, hydraulic and gasoline hose, fuel and hydraulic seals, expander tube brakes, tires, and many others.

Automotive parts and other equipment which had to withstand this extreme cold included automotive fuel and oil hose, radiator and heater hose, motor supports, windshield wiper tubing, bushings, gaskets and seals, railroad air brake and signal hose, fire hose, Vibro-insulators and belting.

NEED FOR RESEARCH

Company research on the effect of severe cold on rubber products, dates back to the winter of 1933-34 when hydraulic brakes on some cars in northwestern United States and Canada would not operate after they had been outside several hours. Examination disclosed that the rubber cups, normally flexible and pliable became brittle and contracted the sealing edges until they were smaller than the diameter of the cylinder they were intended to seal, no longer exerting the necessary pressure. New compounds which would work satisfactorily at 40 below had to be created.

First efforts to test effects of low temperatures on rubber compounds was immersion of samples in cups of alcohol cooled by dry ice. This was soon discarded, however, because temperatures could not be readily and accurately controlled, and because of the solvent effect of the alcohol on the compounds. The first refrigeration room was then created.

Philco Declares 2 Year-End Dividends

PHILADELPHIA — Philco Corp. declared a dividend of 20 cents per share payable Dec. 12, 1945, to stockholders of record Nov. 28, 1945; and the Board of Directors also declared a year-end dividend of 20 cents per share payable Dec. 27, 1945, to stockholders of record Dec. 14, 1945, as compared with 40 cents paid at the end of 1944. Total payments for this year stand at $1.00 per share.

In the third quarter of 1945, net income of the corporation totaled $202,342 or 15 cents per share, as against $990,714 or 72 cents per share last year, and $798,514 or 58 cents per share in the second quarter of this year.

Net income of Philco Corp. in the first nine months of 1945 amounted to $1 46,965 or $1.35 per share after estimated federal and state income and excess profits taxes, and after provision for adjustment and renegotiation of war contracts, President John Ballantyne announced.

Air Co. Moves

NEW YORK CITY—The Ice Air Conditioning Co., Inc., 252 W. 26th St. here, manufacturer of "Monsoon" units and "Typhoon" equipment, has moved its factory and executive offices to 794-6 Union St., Brooklyn.

Several Employes Return To Buensod-Stacey Co.

NEW YORK CITY — Return of several employes, including J. C. Rose and J. E. McDonald, has been announced by A. C. Buensod, president of Buensod-Stacey Co., refrigeration and air conditioning contractor here which also operates Page & Co. Division in Charlotte, N. C.

Mr. Rose was on a three-year leave of absence for work with the United States Rubber Co. Mr. McDonald is back in the New York purchasing department after service with the armed forces.

Capt. A. E. Stacey, Jr., and Lt. Comdr. W. J. McDonald, both with U.S.N.R., are expected to return in February, Mr. Buensod said.

$50,000 Bldg. Started By Kansas City Firm

KANSAS CITY — Ted Rostock, president of the Articaire Refrigeration Co. here has begun construction of a new $50,000 air conditioning and commercial refrigeration shop building on Mill and Archibald Aves.

The company will carry major appliances, commercial refrigeration and room air conditioning in addition to its major air conditioning installation business. Former location was 3615 Broadway.

Herman Goldberg 'Throws Another' for the Industry

Hundreds of people from the refrigeration and air conditioning industry always crowd into the annual pre-Christmas party staged by Herman Goldberg, Chicago manufacturers' agent. Obviously enjoying the affair are (left) F. J. "Jim" Hood, vice president of Ansul and president of Rema, and Len McKesson, Ansul sales manager. At the right, Herman Goldberg himself is at the "mike" running the show.

Adequate Wiring Bureau to Launch Its 1946 'Attack' on 4 'Fronts'

NEW YORK CITY—Practical aids to help leagues and utilities demonstrate the advantage of proper wiring are included in National Adequate Wiring Bureau's 1946 program, soon to be launched.

The bureau said the campaign will be divided into four main parts: a builder program, a wire modernization program, teaching aids for high school home economics instructors, and adequate wiring training material for electrical industry employes.

Material to be used in the builder program include a presentation book for electrical industry groups in selling builders on the advantages of installing adequate wiring, consumer folders, and newspaper advertisements.

Teaching outlines and student project sheets will be sent to home economics instructors. A training program outline, demonstration chart, and presentation, lecture, and house plans for wiring layout practice are planned for electrical industry employes.

Voisinet to Represent Ventilating Lines

BUFFALO — Walter E. Voisinet, one of Buffalo's most prominent heating and ventilating authorities, has resigned as manager of the research laboratory of the Curtiss-Wright Corp. to re-enter the heating and ventilating industry. He will represent several leading manufacturers.

He is past president of the Western New York Chapter of the ASH&VE. Mr. Voisinet's return to the heating and ventilating field marks the reactivation of the Indoor Climate Council of Western New York.

Auditorium--

(Concluded from Page 1, Column 4)

from enforcing any rights or collecting any royalties under the Auditorium patents.

By terms of the decree, the defendants are directed within five days to take the steps necessary to dedicate to the public all of the United States patents and patent rights owned and controlled by Auditorium.

Following is an analysis of the patents which are held by Auditorium Conditioning Corp.:

GROUP A . . . By-Passes External to Conditioner . . . Physical By-Pass

1. Standard By-pass—U. S. Patents Reissue 16611; Reisue 20088
2. Fresh and Mixed Air By-pass—U. S. Patent 1977315
3. Mixed Air By-pass—U. S. Patent 1895444
4. Fixed By-pass—Variable Conditioning—U. S. Patent Reissue 20944
5. Remote By-pass—Local Recirculation—U. S. Patent 1983023

GROUP B . . . By-Passes Internal to Conditioner . . . By-Pass Effect

Sprays

1. Sprays Across Washer—Coil Across Lower Half—U. S. Patent 2110203
2. Wet Coils to Control Constant Differential Between Washer Ends—U. S. Patent 2110164
3. Stratified Dehumidification—U. S. Patent 1955406
4. Controlled Spray Dehumidification—U. S. Patent 1846875
5. Spray Washer with Coils to Produce Comfortable Air—U. S. Patent 2123742

Water, Brine, or Direct Expansion Coils

6. Coils Across Conditioner Variably Controlled—U. S. Patents 2009529; 2202946
7. Coils in Series with Air Flow—Variably Controlled—U. S. Patent Reissue 20069
8. Single Coil Across Conditioner—Refrigerant Controlled—U. S. Patent Reissue 21946
9. Damper Coils to Produce Variable Conditioning—U. S. Patents 2105692; 2150505

GROUP C . . . Differential Controls

1. Designed for Economical Refrigeration—U. S. Patent 1840565
2. Designed for Maximum Use of Outside Air—U. S. Patent 1751805
3. Maximum and Minimum Inside Based on Outside Air—U. S. Patent 1751806

*GROUP D . . . Dehydration**

1. With Cooling of Outside Air and Drying of Mixed Air—U. S. Patent 1863579
2. With Separate Treatment of Outside and Mixed Air—U. S. Patent 1863578
3. With Separate Treatment of Outside and Return Air—U. S. Patent 1863577
4. With City and Chilled Water Cooling—U. S. Patent 1863576
5. For Summer Cooling with Return Air By-pass—U. S. Patents Reissue 17998; 2213350
6. For Year Round Use—U. S. Patent Reissue 18831

*Dehydrator may be Silica-Gel, Lithium Chloride, or similar substances.

GROUP E . . . Miscellaneous

1. Discharge of Conditioned Air Enveloped by Return Air—U. S. Patent 2131725
2. Horizontal Discharge of Conditioned Air Supported by Layer of Room Air—U. S. Patent 2112685
3. Lobby and Waiting Room System—U. S. Patent 1817384
4. Two Stage Conditioner—U. S. Patent 1718815
5. Air Diffuser for Auditorium—U. S. Patent 1737661
6. Reheat with Condenser Cooling Water—U. S. Patent 1902563
7. Regulating Volume and Direction of Air Discharge Responsive to Conditions in Enclosure—U. S. Patent 2259780
8. Increasing Reduction of Latent Heat of Air while Decreasing Reduction of Sensible Heat—U. S. Patent 2249856

Dealer Gets New Store

GLENDALE, Calif.—A new store building is being erected at 210 South Central Ave., here, for the Ellis Appliance Store. It will be 50 by 183 feet in area and will cost $25,000.

Schnacke Buys--

(Concluded from Page 1, Column 2)

keeping with Servel's long established policy, we will continue to furnish parts, repair service, etc., on all of the equipment we have built in the past."

The officers of the new firm are Fred C. Schnacke, president; Walter H. Schnacke, vice president and also president and general manager of the Schnacke Mfg. Corp.; and L. H. Quigley, secretary-treasurer, formerly associated with the T.H.M. Electrical Co., one of the contractors of the Evansville Shipyard. Mr. Quigley has been associated with the electrical industry in numerous capacities for many years.

The manufacturing will be done by Schnacke Mfg. Corp. of Evansville, which has specialized in the manufacturing of precision products for many years and will manufacture a line of well-engineered and precision-built compressor units. Sales will be to distributors and air conditioning and refrigeration contractors, who will install the complete units on the job. Schnacke, Inc. will handle sales for the compressor units in addition to the sales of all other products of the Schnacke Mfg. Corp.

The Schnacke concern manufactured a number of precision built mechanical devices prior to the war and expanded their facilities in a new modern plant during the war.

Among the models to be manufactured will be included 10, 20, 30, 40, and 50-ton compressor units, it was announced.

Noma Electric Corp. of New York City Purchases Estate Stove Co.

HAMILTON, Ohio—At a cost of $2,000,000 in cash plus 35,000 shares of common stock, Noma Electric Corp., of New York City, recently bought Estate Stove Co. here, producer of electric and gas ranges, Heatrola gas, oil, coal, and wood stoves, and space heaters.

Along with announcement of the purchase, made by Henry Sadacca, president of Noma, it was disclosed that Estate will take over the manufacture of the Noma Air Convection electric heater and continue production of its regular line of appliances.

Mr. Sadacca said acquisition of Estate's stock was financed by the private sale of 96,000 shares of common stock. This sale also gave Noma sufficient funds to expand the Estate factory, he stated.

A sales volume in 1946 of about $12,000,000 was predicted for Estate by Mr. Sadacca. This, he said, would represent an increase of nearly 100% as compared with the company's previous top record.

Neither the management nor the policies of Estate will be affected by the purchase, according to Mr. Sadacca. He said present officers of the company, including David Kahn, president and general manager since 1924, will not be replaced.